After-Action Report

Outbreak Response and Bioterrorism Investigation

US-Romania-Moldova

Trilateral Forum and Tabletop Exercise

Chisinau, Republic of Moldova,
19-21 October 2010

Supporting Organizations

Stronger Together

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EXECUTIVE SUMMARY

The Trilateral (US-Romania-Moldova) Civilian-Military Forum on *Outbreak Response and Bioterrorism Investigation* (ORBIT Forum), was held in Chisinau, Republic of Moldova, on 19-21 October 2010. It was organized by the US Department of Health and Human Services (Office of the Assistant Secretary for Preparedness and Response) and the US Department of Defense (US European Command, Armed Forces Health Surveillance Center, Center for Disaster and Humanitarian Assistance Medicine, and the US Public Health Command – Europe). The ORBIT Forum included awareness training and a tabletop exercise designed to evaluate policies and plans for prevention, deterrence, and response to bioterrorism incidents borne out of the convergence of criminal and terrorist networks.

The goals of this event were to:

i) promote interagency (in particular public health-law enforcement but also civilian-military) cooperation, coordination and synchronization for preparing, detecting, and responding to infectious disease outbreaks, whether natural, accidental, or deliberate in nature;
ii) establish sustainable laboratory partnerships to enhance training and medical surveillance initiatives among the three countries; and
iii) strengthen the core capacities required by the WHO International Health Regulations and existing national measures consistent with obligations under the Biological Weapons Convention and the UN Security Council Resolution 1540 to deter, prevent, and respond to biological incidents or threats.

The ORBIT Forum was attended by about 100 participants from US, Romania, and Moldova including civilian and military public health personnel (laboratory and preventive medicine staff, epidemiologists, emergency response planners, administrators), law enforcement, intelligence, military, and affiliated professionals (other first responders, public communication officers, foreign affairs officers), and representatives of non-governmental organizations (VERTIC, Emergent BioSolutions Inc, Frontline Healthcare Workers Safety Foundation Ltd, State Medical and Pharmaceutical University “Nicolae Testemitanu”). Also in attendance were representatives of inter-governmental organizations (WHO, European Centre for Disease Control and Prevention, Interpol, NATO, UN Office of Disarmament Affairs, and the Biological Weapons Convention Implementation Support Unit). Opening

remarks were offered by the US Ambassador to the Republic of Moldova, His Excellency Asif Chaudhry.

The Trilateral (US-Romania-Moldova) Civilian-Military Forum on *Outbreak Response and Bioterrorism Investigation* follows on the heels of the *Southern Caucasus Workshop on Public Health, Security, and Law Enforcement Partnership in Bio-Incident Pre-Planning and Response* and the associated *Southern Caucasus BioShield 2010 Tabletop Exercise* held in Tbilisi, Georgia, 11-12 May 2010 (workshop summary report available at: http://www.phe.gov/Preparedness/international/Pages/southerncaucasus.aspx).
These events illustrate the US Government's commitment toward the implementation of the objectives of the *National Strategy for Countering Biological Threats*, to promote global health security and transform the international dialogue on biological threats, as well as working with cross-border and global partners to enhance national, continental, and global health security in accordance with the *National Health Security Strategy*.

Feedback interviews conducted by Ms. Angela Malaniuc (Moldova PIMS Coordinator) with BG Mihai Marius Muresan, MD, PhD, Surgeon General, Romania, and COL Hans Holtherm, MD, Head of Deployment Health Surveillance, Bundeswehr Medical Office, NATO ACO Medical Directorate, are available on the website of Partnership for Peace Information Management System (PIMS) at: http://www.pims.org/tags/orbit-forum-exercise

This report and the link to PIMS could also be accessed by visiting the website of the US Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response at:
http://www.phe.gov/Preparedness/international/Pages/orbitforum.aspx

OVERVIEW OF THE TRILATERAL (US-ROMANIA-MOLDOVA) CIVILIAN-MILITARY FORUM ON *"OUTBREAK RESPONSE & BIOTERRORISM INVESTIGATION"*

Interpol and the US State Department (International Strategy for Narcotics Control report, released on March 2010) acknowledge that Eastern Europe constitute a major transit point and staging area for drugs and human trafficking, while the war against traffickers is hampered by corruption and weak state institutions. "Frozen conflicts" in the world (such as those in the Transnistrian region of Moldova and areas of the Southern Caucasus) hamper efficient border protection and mitigation strategies. Transnational crime networks also raise the concern that they may be utilized by terrorist groups for acquiring and transporting chemical, biological, radiological or nuclear weapons of mass destruction (CBRN WMD) materials. The nexus of organized crime, drug/human trafficking and terrorism constitutes a global threat and requires a multi-disciplinary and cross-sectoral coordinated strategy of building regional and international consensus and collaboration in order to deter, prevent, or ultimately to respond to the consequences of a terrorist event.

As part of the plan of action of the United Nations Global Counter-Terrorism Strategy, Member States resolved to cooperate fully in the fight against terrorism. In the resolution, the Security Council called upon States to work together urgently to prevent and deter terrorist acts, including through increased cooperation and full implementation of the relevant international conventions.

Located in Eastern Europe (the northeastern part of the Balkan Peninsula), Romania and the Republic of Moldova share a common history, traditions, and language (though officially the latter is named "Romanian" in Romania and "Moldovan" in Moldova).

Political, economical, and social ties between Romania and Moldova have increased considerably in the past years yet a coordinated approach or joint regional preparedness strategy for preventing, deterring and responding to public health emergencies (whether natural, accidental, or deliberate) has yet to emerge. However, the Republic of Moldova does have bilateral agreements with Romania and the Ukraine, on information exchange and mutual collaboration during a crisis, including a 24-hour notification system for communicable diseases. Strengthening institutional agreements and partnerships, for example between public health and crisis

management institutions (both at the civilian and military level) would further benefit regional public health security (and also IHR implementation) in the future.

It should be noted however that the *Joint Operational Programme (JOP) Romania-Ukraine-Republic of Moldova 2007-2013* (a program co-financed by ENPI funds that provides the framework for the implementation of cross border activities in the context of the European Neighborhood Policy) lists as one of its priorities "Environmental challenges and emergency preparedness" thus supporting a coordinated approach and greater regional cooperation in consequence management of potential public health emergencies regardless of cause. The JOP includes activities relating to the fight against and prevention of organized crime focusing on targeted cooperation between professionals, service providers, professional organizations, civil society, non-governmental and governmental entities in areas such as general education activities, social and cultural cooperation, exchange programs, and awareness raising. Under JOP, the main issues that should be addressed in a cross-border context are related to communicable diseases, possible epidemic and pandemic diseases, consumer protection food safety and the enforcement of quality assurance.

The Trilateral (US-Romania-Moldova) Civilian-Military Forum on *Outbreak Response and Bioterrorism Investigation* represents a first step in the Eastern European partnership and coordination on combating biological threats potentially borne out of the convergence of criminal and terrorist networks.

Both Romania and Moldova acknowledge that implementation of consistent policies, operating procedures, and the operational and technical capacity required by the WHO International Health Regulations (IHRs) will help ensure early warning and efficient international management of a biological incident, whether naturally occurring or deliberate in nature. In addition, both countries support national activities toward meeting their obligations under the Biological Weapons Convention (BWC) and UN Security Council Resolution 1540 (UNSCR 1540) such as the adoption of appropriate legislative or administrative measures, including criminal law provisions; enhancing effective implementation and enforcement of these measures; and improving coordination and networking among relevant national stakeholders, in order to build strong barriers to proliferation of biological weapons materials and deny access to non-State actors.

Effective action and regional/international coordination in case of a potential public health emergency of international concern requires strengthening the national

capabilities and public health systems for disease surveillance, detection, diagnosis, and response as well as a multi-sectoral coordinated approach.

The *Outbreak Response and Bioterrorism Investigation* Trilateral (ORBIT) Forum, held in Chisinau, Republic of Moldova, on 19-21 October 2010, intended to familiarize participants with:

- WHO's revised International Health Regulations (2005), Global Outbreak Alert and Response Network (GOARN), and the Global Laboratory Directory (GLaD);
- The Biological Weapons Convention (BWC) mechanism and instruments for an internationally coordinated approach to combating biological threats and requesting technical assistance for implementation;
- The UN Secretary-General's Mechanism (UNSGM) for Investigation of Alleged Use of Chemical and Biological Weapons and its key elements [trigger procedures under the BWC, use of the UNSGM roster of experts and laboratories, and the guidelines and procedures for the conduct of investigations as updated by the UN Office of Disarmament Affairs (UNODA)];
- Ways and means for requesting technical assistance with the UN Security Council Resolution 1540 (UNSCR 1540) implementation;
- NATO's resources for assistance to Partner countries, its Deployment Health Surveillance Capability development, Defence Against Terrorism Initiative, and NATO's recent (2009) Comprehensive, Strategic-Level Policy for Preventing the Proliferation of Weapons of Mass Destruction (WMDs) and Defending against CBRN Threats;
- Interpol's Bioterrorism Prevention Program and its resources for assistance to member countries.

The forum was also intended to highlight the activities and programs of the European Centre for Disease Prevention and Control (ECDC), the US Centers for Disease Control and Prevention (CDC), Armed Forces Health Surveillance Center (AFHSC), US Army Public Health Command, and the Frontline Healthcare Workers Safety Foundation Ltd which are aimed at strengthening the national response capabilities to infectious disease outbreaks through training of the public health (including laboratory) workforce, enhancing public health leadership, and implementing laboratory and disease surveillance quality management systems.

A strong focus of the event was on civil-military cooperation by highlighting the US Army Corps of Engineers (USACE) Civil Military Emergency Preparedness (CMEP) Program, civilian and military biosurveillance/ response capabilities and national integration (in US, Romania, and Moldova), and the respective national plans for military support to civilian authorities in CBRN consequence management.

The ORBIT Forum was organized as a series of plenary presentations ("academics") supplemented by a tabletop exercise focused on bioterrorism prevention, deterrence, and response.

Participants received at registration a welcome package containing the workshop agenda, list of participants, table top exercise manual, and reference materials (on relevant resources, programs, and initiatives of WHO, BWC, UNSCR 1540, Interpol, and NATO).

At the forum/TTX conclusion, participants received nominal Certificates of Appreciation signed by the representatives of the US Department of Health and Human Services (Office of the Assistant Secretary for Preparedness and Response) and the US Department of Defense (The US European Command and The Armed Forces Health Surveillance Center).

U.S. Department of State, Background Note: Moldova
Excerpts

After the Russo-Turkish War of 1806-12, the eastern half of Moldova (Bessarabia) between the Prut and the Dniester Rivers was ceded to Russia, while Romanian Moldavia (west of the Prut) remained with the Turks. Romania, which gained independence in 1878, took control of Russian-ruled Bessarabia in 1918. The Soviet Union never recognized the action and created an autonomous Moldavian republic on the east side of the Dniester River in 1924. In 1940, Romania was forced to cede Bessarabia (a territory now occupied by the Republic of Moldova) to the Union of Soviet Socialist Republics (U.S.S.R.), which established the Moldavian Soviet Socialist Republic by merging the autonomous republic east of the Dniester and the annexed Bessarabian portion. Stalin also stripped the three southern counties along the Black Sea coast from Moldova and incorporated them in the Ukrainian Soviet Socialist Republic.

From August 1991, Moldova's transition to democracy confronted a series of obstacles, including an ineffective Parliament, the lack of a new constitution, a separatist movement led by the Gagauz (Christian Turkic) minority in the south, and unrest in the Transnistria region on the left bank of the Nistru/Dniester River, where a separatist movement declared a "Transdniester Moldovan Republic" in September 1990. The Russian 14th Army intervened to stem widespread violence and support the Transnistrian regime. In 1992, the government negotiated a cease-fire arrangement with Russian and Transnistrian officials, although tensions continue, and negotiations are ongoing. The conflict with the Gagauz minority was defused by the granting of local autonomy in 1994.

Website: http://www.state.gov/r/pa/ei/bgn/5357.htm

TRILATERAL FORUM ACADEMICS

The Trilateral (US-Romania-Moldova) Civilian-Military Forum on *Outbreak Response and Bioterrorism Investigation* (ORBIT Forum), held in Chisinau, Republic of Moldova, on 19-21 October 2010, commenced with introductory remarks by high-level keynote speakers such as His Excellency Asif Chaudhry, U.S. Ambassador to the Republic of Moldova; Dr. Mihai Magdei, Deputy Minister, Ministry of Health, Republic of Moldova; BG Mihai Marius Muresan, Surgeon General, Romania; Dr. Laurentiu Mihai, Senior Counselor, Ministry of Health, Romania; Dr. Thomas Hofmann, Area Coordinator IHR, World Health Organization (WHO) Regional Office for Europe; COL Robert Lipnick, Chief, Communications, Standards & Training Division, U.S. Armed Forces Health Surveillance Center (AFHSC); and LtCol Matt Wyatt, Chief Force Health Protection, U.S. European Command (EUCOM), Command Surgeon's Office. The keynote speakers were introduced by Dr. Dana Perkins, Senior Science Advisor, US Department of Health and Human Services (HHS), Office of the Assistant Secretary for Preparedness and Response (ASPR).

The plenary presentations were organized in four main sessions addressing the multi-layered systems of defense of public health security from an international perspective (the role of international organizations in, *inter alia*, information sharing on public health events of international concern, early detection and notification, BW nonproliferation, coordination of regional and international assistance for consequence management) and national perspective (with regard to national response frameworks, including, *inter alia*: laboratory capabilities, national plans and responsible authorities for bio incident consequence management, exercises/training in support of national plans, whole-of-government and regional collaboration approaches and/or plans for national/international information sharing and notification, epidemiological/law enforcement investigations, consequence management and coordination of assistance).

The third session, Epidemiological Surveillance and Investigation, focused on the capacities and competencies needed to rapidly conduct epidemiological investigations. It included deliberate and naturally occurring exposure and disease detection, rapid implementation of active surveillance, maintenance of ongoing surveillance activities, epidemiological investigation, analysis, and information sharing. Emphasis was placed on competencies and capacity as required by WHO International Health Regulations, UN Secretary General’s Investigative Mechanism of

Alleged Use of Biological and Chemical Weapons, and on public health and law enforcement cooperation to identify the biological agent, prevent the spread of the disease, prevent public panic, and apprehend those responsible.

The fourth session, on Cooperative Laboratory Networks, focused on successful models of cooperative lab networks and means to establish and sustain partnerships among national laboratories. Laboratories play a critical role in the timely recognition of biological threats. However, laboratory capabilities and capacities vary widely around the world. The national public health preparedness and response are strengthened by participation in laboratory networks at the local, regional, and global level.

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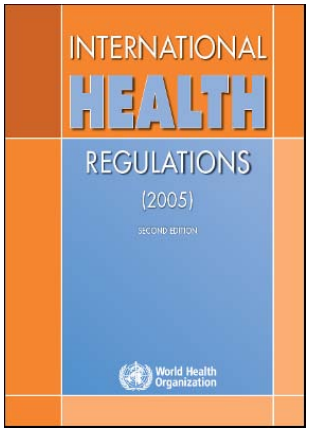
Key Messages

The first session offered an international perspective on *Public Health Security - A Multi-Layered System of Defense*, and it focused on the role of international organizations in, *inter alia*, information sharing on public health events of international concern, early detection and notification, BW nonproliferation, coordination of regional and international assistance for consequence management. Speakers were introduced by Mr. Carl Prober, Foreign Affairs Officer, US Department of State.

Dr. Thomas Hofmann, Area Coordinator IHR with WHO-EURO provided an overview of the implementation of the International Health Regulations (2005) [IHR] in the WHO European Region, the required core capabilities for IHR implementation, and the WHO event management structures and process.



The current IHR – the international agreement designed to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference

with international traffic and trade - entered into force on 15 June 2007 and it provides the framework for improved international public health security. IHR defines a risk management process where Member States work together and through WHO to collectively mitigate public health emergencies.

The IHRs define obligations to assess and manage public health risks and events that have the potential to spread beyond national borders and they apply to any diseases (including those from new or unknown causes), irrespective of origin or source, that could present significant harm to humans; IHRs provide guidance to WHO Member States for meeting those obligations in order to collectively respond to international public health challenges of the 21st century.

The required IHR core capacities refer to: (1) National legislation, policy and financing; (2) Coordination and National Focal Point (NFP) Communications; (3) Surveillance; (4) Response; (5) Preparedness; (6) Risk communication; (7) Human resources; and (8) Laboratory (which includes biosafety/biosecurity). These core capacities are addressing the four IHR-related hazards [zoonotic, food safety (considered as biological), chemical, radiological and nuclear].

Under the current IHR, countries must report to WHO any cases within their borders of specific diseases: smallpox, polio caused by a wild-type poliovirus, human influenza caused by a new subtype, and SARS. In addition, countries must notify WHO in a timely way of any public health event - whether of infectious, chemical, biological, or radiological nature - that might have international public health implications according to the criteria detailed in Annex 2 of the Regulations. Once relevant national authorities detect an event, the risk assessment should be conducted and, within 48 hours from the assessment, an event with potential international public health implications should be reported to WHO. Additional information to refine the risk assessment should be provided to WHO according to the timeframe stipulated in the relevant provisions.

WHO identified seven strategic areas for global IHR implementation:

1. Global partnership
2. National alert and response
3. Points of Entry
4. Global alert and response
5. Global disease specific programmes
6. Legal aspects
7. Monitoring and reporting

WHO also identified 6 action fields for regional implementation of IHRs:

1. Provide support to Member States to strengthen IHR Core Capacities
2. Provide support to Member States to raise awareness on the political level and to train key experts to implement IHR
3. Involve the European Region in global Member States' networks and initiatives for IHR implementation
4. Increase collaboration with HQ, other WHO Regional Offices, ECDC and other relevant institutions and organizations
5. Strengthen coherency of disease-specific (vertical) WHO programs
6. Facilitate response to Member States' requests and facilitate communication between the European Region, Country Offices and Member States

WHO ensures that countries have rapid access to the most appropriate experts and resources for outbreak response through the Global Outbreak Alert and Response Network (GOARN). GOARN is the operational arm of the IHRs.

GOARN was created in April 2000 to improve the coordination of international outbreak responses and to provide an operational framework to focus the delivery of support to countries upon requests for assistance from Member States. It is a partnership of over 190 technical institutions and networks coordinating actions and resources to respond to public health events of international concern.

GOARN provides:

• Clear Terms of Reference for International Missions

• Equitable and appropriate participation in field missions
• Access to information exchange and sharing of best practice, technology transfer
• Alleviate costs, by improving the use/mobilization of resources, and providing surge capacity
• Dependable field logistics and consistent operational support
• Strengthen transparency and credibility, enhance dialogue and build trust

GOARN has helped to build consensus on guiding principles for international outbreak alert and response and to establish operational protocols to standardize field logistics, security, communications, and streamlined administrative processes to ensure rapid mobilization of field teams. WHO has also developed its capacity at all levels, with regional and sub-regional response teams initiating field operations with GOARN Partners.

GOARN's primary goals are to:

- Assist countries with disease control efforts by ensuring rapid and appropriate technical support to affected populations.
- Investigate and characterize events and assess risks of rapidly emerging epidemic disease threats.
- Support national outbreak preparedness by ensuring that responses contribute to sustained containment of epidemic threats.

Since 2000, WHO and GOARN Partners have provided experts to over 104 field operations in 75 countries.

New strategic areas are being developed over the next two years to increase GOARN's effectiveness:

• Strengthening the network composition and regional focus to rapidly adapt and draw upon multidisciplinary support from GOARN.
• Developing further specific capabilities in outbreak response team leadership, integrated data management, logistics and communications and field-based administrative procedures and protocols.
• Refining WHO/GOARN's expert collaboration and virtual networking for international technical collaboration.

Dr. Hofmann also highlighted the availability of GOARN residential courses in international outbreak response addressing:

- WHO role, objectives and procedures.
- Team leadership
- Personal and operational security.
- Outbreak logistics.
- Health on mission.
- Field epidemiology.
- Case management and infection control.
- Social mobilization.
- Working in support of national partners.
- Risk communication.

WHO's primary role in response to an accidental or intentional release of a biological agent will be to manage the public health consequences and communicate real-time public health risk assessments and recommendations.

The World Health Assembly Resolutions WHA 54.14 and WHA55.16 committed WHO as the UN specialized health agency to build capacity towards bio incident preparedness in Member States. WHO's approach is through public health system improvement and implementation of the capacity strengthening component of IHR

"The difficulties of predicting or pre-empting a bioterrorist attack underscore the need for careful preparedness planning. They also lead some analysts to regard strong public health infrastructures as the only reasonable defence …

Routine surveillance systems for epidemic-prone and emerging infectious diseases enhance the capacity to detect and investigate deliberately caused outbreaks, as the initial epidemiological and laboratory techniques are similar to those used for natural outbreaks. Adequate background data on the natural behaviour of infectious diseases facilitate recognition of an unusual event and help determine whether suspicions of a deliberate cause should be investigated." - WHO/CDS/CSR/EPH/2002.16 */Preparedness for the deliberate use of biological agents - A rational approach to the unthinkable*

WHO also has a role in providing technical support to the UN and international community in the investigations of alleged use as well. It supports thee UN Office for Disarmament Affairs (UNODA) which has been mandated by the UN General Assembly Resolution 60/288 (2006) to coordinated the activities to strengthen the Secretary-General's mechanism for investigating alleged use of CBW, emphasizing the need for strengthening the biological area. WHO is assisting UNODA to develop the technical/operational capabilities to conduct an investigation of deliberate biological events.

A Memorandum of Understanding was signed in August 2010 between WHO and UNODA. The roadmap for future collaboration includes:

- Harmonization of relevant operational procedures.'
- Educational/ Training activities.
    - Exchange of invitations to observe/participate in the respective training.
    - Exchange of visits to share experience, information and promote cooperation on a working level:
    - Identification of skills and expertise in relevant Roster
- Endeavor to assist in conducting field operations including equipment, information, and seconding technical experts.

Dr. Massimo Ciotti, Deputy Head, Preparedness and Response Unit, European Centre for Disease Prevention and Control (ECDC) discussed the role of ECDC in the identification, assessment, and communication of current and emerging threats to human health from communicable diseases in the European Union (EU) and highlighted the role of his organization in both prevention and response. ECDC's goal in health security is to move down the epidemic curve to the earliest point of detection and rapid response while its preparedness and scientific programs help moving ahead of the curve to better understand and prevent the emergence of epidemic diseases.

In the EU, ECDC is responsible for disease surveillance/detection, epidemic intelligence, risk assessment, early warning and response, scientific studies and public health guidance, technical assistance and training; and public communication. It is the responsibility of EU Member States and their health systems to take the measures needed to prevent or control diseases (ECDC can only provide support, when requested). EU health security system is part of the architecture of the international health security system.

There is a strong partnership between WHO and ECDC, formalized by a memorandum of agreement between the two organizations to have mutual access to WHO's IHR notifications and ECDC's Early Warning Response System (EWRS) - which is an IHR-like system established in 1998. Information on potential public health threats is disseminated daily and weekly via the "Threat Tracking Tool" and via the Epidemic Intelligence Information System (EPIS). ECDC has critical functions in bioterrorism prevention and response by strengthening public health systems, providing threat assessments, implementing outbreak response protocols to include discrimination criteria (natural versus deliberate), and interacting with the law enforcement (i.e. joint public health-law enforcement training in field investigation, simulation exercises, etc).

COL Hans Holtherm, MD, Head of Deployment Health Surveillance, Bundeswehr Medical Office, Munich, Germany, presented on "The Development of a NATO Deployment Health Surveillance Capability (DHSC) in the ACT / ACO / MILMED COE / COMEDS framework". COL Holtherm also serves as the Head of DHSC COMEDS FHP Working Group and as a Chairman DHSC subpanel which is charge to develop a NATO proposal for an early warning system for CBRN-related and naturally occurring outbreaks

potentially affecting Force Health Protection. The results of the 2008 and 2010 multinational KFOR DHSC Exercises showed that near real time syndromic surveillance is technically feasible. This Deployment Health Surveillance Capability is expected to become operational in 2011 with the Bundeswehr Medical Office serving as the Central Analysis Center. However, a more comprehensive and NATO-integrated approach is needed in order to achieve full operationality and this requires a functional relationship with the Military Medicine Centers of Excellence (MILMED CoEs) and also the commitment and participation of the partner nations to this initiative.

Ms. Ngoc Phuong Huynh, Political Affairs Officer, BWC Implementation Support Unit, presented an overview of the *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction* (the Biological Weapons Convention or BWC for short) and the current intersessional working program (2007-2010). She described the formal consultative process available to Member States under Article V for "*solving any problems which may arise in relation to the objective of, or in the application of the provisions of, the Convention"*, the Article VII stipulation for assistance and the UN coordinating role (with the help of States Parties and appropriate intergovernmental organizations such as WHO, OIE, FAO, and IPPC) as well as Article VI stipulations with regard to violations of the BWC.

Ms. Huynh also presented a brief overview of the biological threats in the 21st century, an issue later addressed in detail by the joint Interpol-NATO presentation by Mr. Joris De Baerdemaeker and Mr. Axel Angely on "Assessing Biological Risks and Threats" which emphasized the concepts of prevention and deterrence as well as the importance of early detection of biological incidents to ensure effective consequence management.

At the 2006 Sixth Review Conference of BWC, Member States noted that the United Nations Secretary General's mechanism for investigations of alleged use of chemical, biological or toxin weapons (UNSGM) represents an international institutional mechanism for investigating cases of alleged use of

biological or toxin weapons, and invites the Security Council to request that the Secretary General investigates the allegations of use.

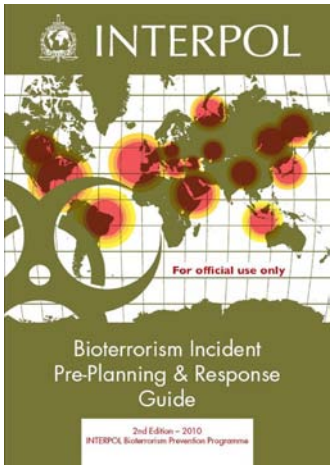
The UNSGM is triggered by a request to the Secretary General to carry out promptly investigations in response to reports that may be brought to his attention by any Member State concerning the possible use of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law in order to ascertain the facts of the matter, and to report promptly the results of any such investigation to all Member States.

The UN Global Counter-Terrorism Strategy adopted by the UN General Assembly in 2006 (A/RES/60/288) encourages the Secretary-General to update the roster of experts and laboratories, as well as the technical guidelines and procedures, available to him for the timely and efficient investigation of alleged use. Currently, there are more than 237 experts and more than 42 laboratories on the UN rosters.

Mr. Franz Kolar, Political Affairs Officer, UN Office of Disarmament Affairs (UNODA), described the fact-finding scope of the SGM, the partnership with other inter-governmental organizations (OPCW, WHO, FAO, OIE, Interpol), and the SGM comprehensive coverage (launching the investigation; the role of consultants, experts, and laboratories; preparations and conduct of fact-finding missions; technical procedures for fact-finding activities; drafting and content of report). The UNODA role is to serve as a focal point within the UN Secretariat to facilitate the administrative and substantive support and coordination for the efficient functioning of the investigative mechanism, including the conduct of on-site investigations.

Mr. Franz Kolar invited Romania and Moldova to consider the inclusion of their experts and/or laboratories on the UN rosters, highlighting the future opportunities to train as UN-fact finding teams and contribute to the current process of updating of the UNSGM Technical Guidelines and Procedures (TGPs). Of note, the TGPs were drafted in 1989 (A/44/561) and endorsed by the UN General Assembly in 1990 (RES/45/57).

INTERPOL's Manager of the Bioterrorism Prevention Program, Mr. Joris De Baerdemaeker, described the Interpol's Bioterrorism Prevention Unit, the program's initiatives on building national and international capacity to counter the threat of bioterrorism (i.e. via threat awareness raising, law enforcement training programs, providing support to strengthening/developing national legislation, and developing tools for law enforcement investigations), and the role of Interpol and its resources in assisting members states in response to deliberate biological incidents, criminal or terrorist in nature.



One of such resource, the Interpol's newly revised 2010 *Bioterrorism Incident Pre-Planning & Response Guide*, was handed out as a reference material to the forum participants.

Mr. Axel Angely, Co-Director of the Centre of Weapons of Mass Destruction at NATO, discussed NATO's reorganization, NATO Centers of Excellence, NATO's *Comprehensive, Strategic-Level Policy for Preventing the Proliferation of WMDs and Defending against CBRN Threats*, and NATO's role in international cooperation toward WMD nonproliferation. Mr. Angely also discussed the NATO engagement with the Republic of Moldova under the Partnership for Peace (PfP) (in particular with regard to Civil Emergency Planning) and NATO Science for Peace and Security Programs. Since 2005, there is an ongoing NATO PfP Trust Fund project in Moldova to destroy pesticides and dangerous chemicals that were in poor condition, were scattered over several locations and posed a serious health and environmental hazard. A NATO-funded laboratory was established for this purpose, and local personnel were trained in standard sampling, analysis and data management techniques. The third phase of this NATO PfP project started in February 2010 with the aim to eliminate about 1,300 tons of the previously repacked pesticides and dangerous chemicals. Romania is the lead nation for the Trust

Fund project whereas the NATO Maintenance and Supply Agency (NAMSA) is in charge of its overall implementation. The third phase is estimated to cost €2.1 million and should take at least 12 months. Other NATO initiatives in Moldova include the establishment of a "NATO Information and Documentation Center at the Chisinau State University in October 2007 in order to familiarize the Moldovan public with the NATO programs and its partnership with the Republic of Moldova.

VERTIC (Verification Research, Training and Information Centre) is an independent, not-for-profit, non-governmental organization which promotes effective verification and implementation measures for arms control and disarmament agreements (such as BWC, UNSCR 1540, etc) (website: http://www.vertic.org). **VERTIC's Mr. Scott Spence, JD,** provided an overview of BWC and BW-related requirements of UNSCR 1540 as well as ways of effective implementation at the national level (including challenges and benefits). Mr. Spence also discussed the options for having a national policy entity ('National Authority') either centralized (i.e. one entity assumes all the responsibilities and functions related to implementation of the BWC) or decentralized (i.e. the entity coordinates the implementation activities of all relevant governmental bodies and has overall responsibility for international cooperation with regard to the BWC).

The national perspectives on *Public Health Security - A Multi-Layered System of Defense*, were provided by keynote speakers from the Republic of Moldova, Romania and US. Speakers from the Republic of Moldova and Romania also addressed their national capabilities (both civilian and military) in the *Epidemiological Surveillance and Investigation.* Speakers were introduced by LtCol Matt Wyatt, Chief Force Health Protection, U.S. European Command (EUCOM).

Dr. Stela Gheorghița, Deputy Director, National Center for Public Health, Ministry of Health, Moldova, provided a detailed overview of the disease surveillance and response system in Moldova, the biological threat list, and the legislative framework for preparedness and response to public health emergencies (i.e. Public Law no. 10-XVI/2009 on the State oversight of public health, Governmental Decision no. 475 **"**On approval of the Plan of Action for the implementation of IHR in the Republic of Moldova"- establishing a formal national framework for planning and conducting concerted inter-sectoral activities in 2008–2012; Governmental decision no. 820/2009 establishing the National Extraordinary Public Health Commission for the integrated and coordinated prevention and management of the threats and hazards to public health and the multi-sectoral mobilization of response assets; Governmental Decision no. 961 of 21 August 2006**,** which establishes a national laboratory network for the surveillance and control of radioactive, poisonous and highly toxic substances, and biologic agents in the environment; Ministry of Health

Decision 268 of 06 Aug 2009 nominating the National Center for Public Health as the National Focal Point (NFP) for the WHO IHRs.

The National Center for Public Health has been a strong driving force, not only in initiating the IHR implementation process, but also in ensuring the involvement of all key stakeholders in the development of the draft national plan of action (including the establishment of an inter-agency, multisectoral committee as a platform for planning and consensus building) which was presented to the Government for approval at the time of the mission in February 2008. Thus, the Republic of Moldova was one of the few countries that, at the time, had come so far in the implementation process.

The National Center for Public Health of the Republic of Moldova has an avant-garde electronic disease surveillance system which allows the real time monitoring, analysis and assessment of public health indicators and events in the country (integrating demographic clinical, epidemiologic and laboratory data).

The electronic disease surveillance system routinely collects data about occurrence of diseases and it is complemented by an event monitoring component where information on potential threats is routinely searched for and assessed with the system generating emergency alerts (based on the time occurrence and regional clustering).

The system can also be used to generate user-defined alerts on:

- CBRN incidents;
- Novel or unknown disease causes;
- Communicable diseases via human-to-human transmission, vectors, or trade goods (including food) and environmental release;
- Public health emergency requiring immediate mitigation;
- Unusual events (not characteristic for the time, space, or population surveilled).

The electronic disease surveillance system in the Republic of Moldova integrates human and veterinary disease surveillance and allows statistics and GIS analysis as well as the generation of specific or general reports.

Laboratory scene, National Center for Public Health, Moldova

Professor Dr. Valeriu Chicu, Prorector, State Medical and Pharmaceutical University "Nicolae Testemitanu", Chisinau, Republic of Moldova, talked about the field epidemiological investigations in Moldova. Dr. Chicu described the triggers for launching a field investigation, the field teams involved (either ad-hoc teams composed of experts or the already constituted rapid response teams, depending on the nature of the event), their personal protective equipment and their main responsibilities in the field. In the past 15 years, such teams responded for example to outbreaks of salmonellosis, dysentery, hepatitis A, cholera, diphtheria, mumps, and anthrax. Dr. Chicu stressed the importance of a communication network in the conduct of investigations of public health emergencies, including a pre-established reporting and feedback system, case definitions, and the network of laboratories for surveillance and early detection.

Dr. Radu Cucuiu, IHR Technical Expert, National Institute for Public Health, Ministry of Health, Romania, gave a presentation on the *Civilian & Military Surveillance and Response on Communicable Diseases in Romania*. Dr. Cucuiu described the disease surveillance system in Romania highlighting the role of the National Institute of Public Health (established by Government Decision no. 1414/2009 and law no. 329/2009) as the National Center for

Surveillance and Control of Communicable Diseases and as the NFP for WHO IHRs. The National Institute of Public Health includes three National Centers (For Communicable Diseases Surveillance and Control; For Monitoring and Evaluation of the Environmental Risks in the Community; For Promotion of the Health Status) and six Regional Centers (4 of them with communicable diseases responsibilities). Romania has a National Electronic Register for Communicable Diseases and a legal framework for reporting (Romanian Government Decision no. 589 /2007 (data collection and reporting methodology for communicable diseases surveillance); MoH Order no. 1466/2008 (informational flow of the unique notification form for communicable diseases). 11 communicable diseases are reported by phone, immediately after detection; 25 communicable diseases – reported in 24 hours. Depending on the risk assessment of the event, the public health response may be undertaken at the district, regional, or national level and it may involve multi-sectoral assets, including military.

Dr. Dana Perkins, Senior Science Advisor, Office of the Assistant Secretary for Preparedness and Response (ASPR), U.S. Department of Health and Human Services (HHS) described the "system of systems" of disease surveillance in the United States, the shared responsibility among a several stakeholders communities (i.e. health care providers; local health departments including county, city, and tribal health departments; state and territorial health departments; public and private laboratories; public health officials from several Federal departments), and the integration of civilian and military in disease surveillance and response. She highlighted the importance of interagency and intergovernmental cooperation to timely and effectively address multiple public health emergency scenarios- each with different challenges- and the recognition and analysis of unusual disease indicators.

In particular Dr. Perkins addressed the Federal responsibilities in disease surveillance including the collection/analysis of disease surveillance data and support of disease surveillance systems; operating and funding disease surveillance systems; supporting networks of laboratories that test specimens and develop diagnostic tests for identifying infectious diseases and biological or chemical agents; sharing information with local, State, and international partners through different means such as from public Web sites or secure Web-based communication systems.

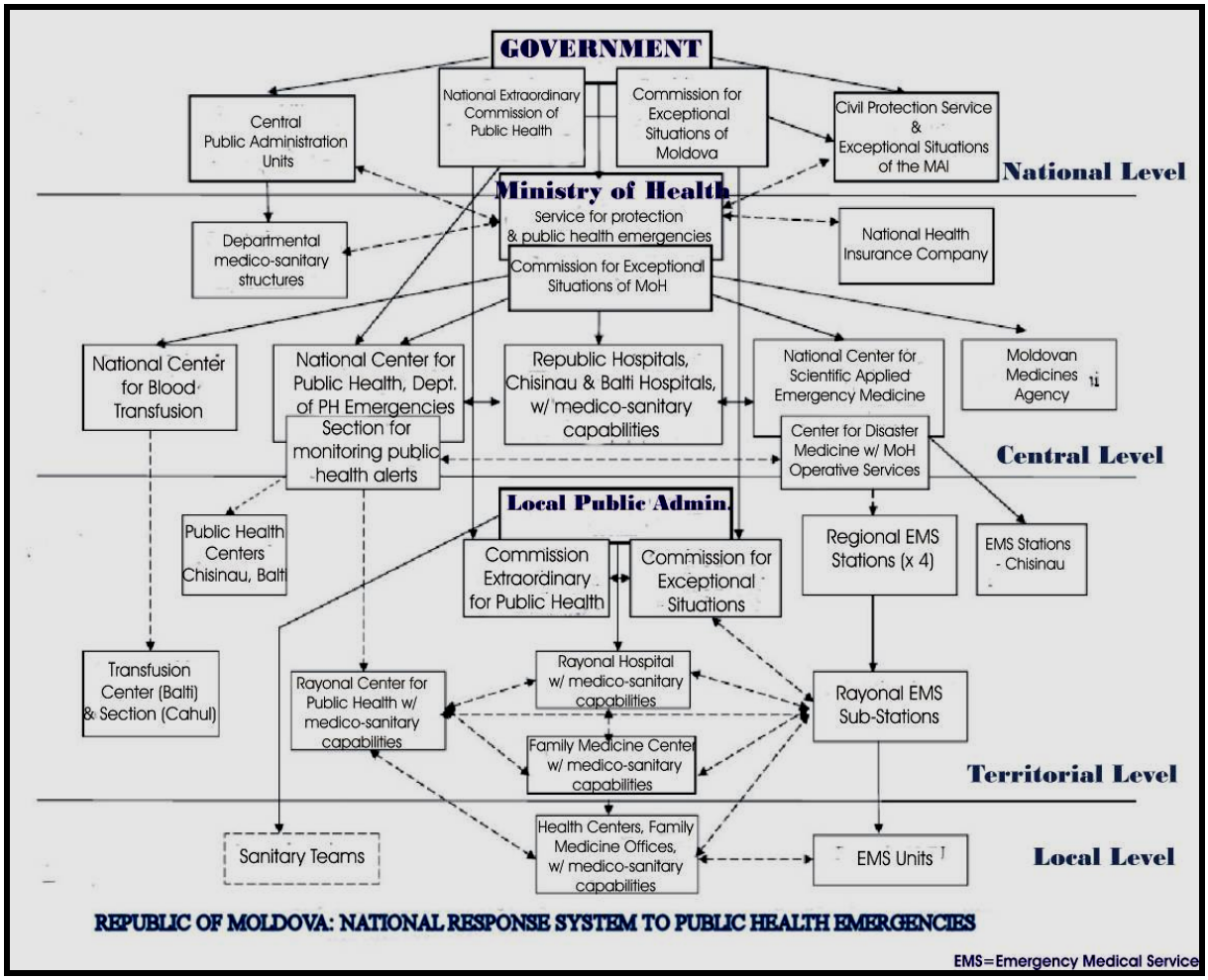
Dr. Dana Perkins also discussed the *US* W*hole-of-Government Approach to Consequence Management of Biological Incidents and Hazards*, summarizing the US National Response Framework (NRF), the role and responsibility of the US Department of Health and Human Services (HHS) as the lead Federal agency for providing public health and medical services under the Emergency Support Function # 8 (ESF#8), and the roles of other agencies, for instance as described in the Biological Incident Annex of the NRF on public health reporting and cooperation with the FBI on instances of disease that raise the "*index of suspicion*" of terrorist or criminal activities; and also on defense support to civilian agencies. The goals and strategic objectives of the *National Health Security Strategy* as well as the role of public communication (i.e. via the ASPR website http://www.PHE.gov) were also discussed in the context of the ongoing US Government efforts to optimize the national public health preparedness and response capabilities.

Health systems are defined by WHO as comprising all the organizations, institutions and resources that are devoted to producing action aimed principally at improving, maintaining or restoring health. This includes public and private initiatives (for example, by non- and inter-governmental agencies), and action at central, local, population and military levels – from tertiary care to local community health care – all of which may have a role to play during a crisis. Promoting transparency and interoperability in the public health security planning process, the involvement of all disciplines and levels of the health system, and the integration with national disaster preparedness and response plans aim to ensure a coordinated and effective response to public health emergencies, making the best use of often limited resources and preventing duplication of effort. This is important not only during a crisis but also as part of prevention, risk reduction and mitigation strategies.

It is therefore important in assessing the national capabilities to respond to public health emergencies to include the military medical assets.

In the ORBIT Forum, **MAJ Iurie Caterinciuc from the Preventive Medicine Center, Ministry of Defense, Moldova,** presented on the *Military Support to Civilian Authorities in Moldova.* The Preventive Medicine Center is part of the National Army Health Service and provides disease surveillance, preventive medicine and outbreak response services in the National Army. In

Moldova, the Public Law No. 93 on Civil Protection and Emergency Situations Service of 5 April 2007, which establishes the Civil Protection and Emergency Situations Services, defines its roles and responsibilities at national and sub-national levels, as well as the conditions of service. According to the law, the Civil Protection and Emergency Situations Services are responsible for coordinating the activities of all authorities involved in response to disasters. The overall mandate of the Civil Protection and Emergency Situations Service is to protect people and property, conduct rescue operations, mitigate the effects of crises, and plan crisis preparedness for the population. To this end, they carry out activities related to: risk assessment; training; crisis planning; monitoring and evaluation; prevention and reduction; early warning; mass casualty management and public communications. They are also responsible for fire-fighting services throughout the country. The Medical Emergency Service in Moldova is led by the Ministry of Health and it involves the Ministry of Interior, the Department of Emergency Situations of the Republic of Moldova, municipal and regional departments for emergency situations, Police, and units of the Ministry of Defense, in accordance to pre-established protocols and agreements. The Moldovan Army is considered to be an important resource for response in an eventual crisis; it has a medical department for 'rapid reaction', a small number of medical combat personnel and one hospital with the capacity to develop a small medical detachment.



COL Cristian Răduț, MD, Deputy Director, Medical Research Center, Ministry of Defense, Romania, provided an overview of the Military System for Communicable Disease Surveillance in Romania and its capabilities. It consists of the Preventive Medicine Center – Bucharest; Preventive medicine laboratories within the Military hospitals – Constanta, Craiova, Focsani, Sibiu; and primary healthcare facilities in the military units. The data is collected by the Medical Directorate within the Ministry of Defense. The Romanian Military System for Disease Surveillance includes a Military Medical Research Center (for CBRN R&D); a Preventive Medicine Center; and Medical Facilities for use in public health emergencies.

The Military Medical Research Center has a BSL 2+ Laboratory for the diagnostic of biological agents (includes an ABSL-2 for animal research); a mobile laboratory for detection and identification of biological agents equipped with MALDI TOF mass spectrometer LT 20 Microflex Bruker; and

a BSL 4 laboratory (not yet commissioned) for *in vitro* diagnostic and biological agents research. The mobile biological intervention teams (EMI-BIO) consist of one main team (active) and one team on reserve. The teams have CBRN and medical personal protection equipment (PPE) as well as specific materials for intervention, sampling and sample transport to the laboratory but their detection/identification capabilities in the field are minimal. The detection and identification of biological agents of civilian and medico-military interest in air, water and soil samples are performed in fixed facilities (primarily using the LT 20 Microflex Bruker) and not in the field.

Romanian Mobile Laboratory (BSL-2+) at the BIOEX '09 CPX (Tulcea, Romania, 2009)

The Preventive Medicine Center provides diagnostic services (water, food, biological samples); performs epidemiological investigations for infectious disease outbreaks in the military communities, and also supports in this regard, upon request, the civilian authorities; other collectivities of interest on request from, and supporting to, a national authority; performs communicable disease surveillance for the personnel of the Ministry of Defense in collaboration with the Ministry of Health; performs the mandatory immunizations for the military personnel which is deployed in missions abroad and in special epidemiological situations (epidemics, floods, etc.).

Medical facilities for use in public health emergencies include a toxicological ward (for casualty treatment and lab testing); a radiobiological ward (for

radiation exposure treatment); infectious disease wards included in the military hospitals; a national network of military and civilian hospitals.

Responding to a biological attack to mitigate its effects would entail the combined use of medical surveillance, detection/identification, medical countermeasures, physical protection, and/or restriction of movement. The capabilities developed by the Romanian military to meet NATO requirements are also significant assets in the national preparedness to prevent and respond to biological incidents, whether natural, accidental, or deliberate. For instance, components of these units were part of the NATO CBRN Defence Battalion and/or NATO Response Force, were deployed to Iraq, but have also been involved in the response to the 2005-2006 H5N1 Highly Pathogenic Avian Influenza (HPAI) in domestic poultry in South-Eastern Romania, assisting civil authorities with decontamination and infection control measures.

COL Răduț further described BIOEX ’09, a command post exercise (CPX) held in Tulcea, Romania, on 29-30 September 2009. BIOEX ’09 was co-organized by the Romanian Intelligence Service (Romanian acronym: SRI) and an NGO, the *Regional Center for Higher Studies on the Prevention of Bioterrorism.* The specific goals of BIOEX ’09 command post exercise (CPX) were to exercise Romanian inter-agency coordination and communication in preventing and combating bioterrorism, command and control in civil emergency consequence management, and interoperability of agencies responsible for consequence management. About 50 participants from various Romanian ministries and agencies were in attendance, including 7-8 participants were from the Ministry of National Defense (MOD). Also in attendance were international observers from the Federal Bureau of Investigation (FBI)/WMD Directorate and the US Army Reserve Consequence Management Unit (USAR CMU).

The CPX was followed by a capabilities demonstration/mini-field training exercise (FTX) [carried out by the SRI Antiterrorism Brigade and the Ministry of Administration and Interior (MAI) NBC Special Unit] and a demonstration of medical triage, biological sample collection, and transport capabilities as well as a static display of equipment in use by the Romanian first responders (civilian and military). Specialized military CBRN response units in attendance were components of SIBCRA (Sampling and Identification of Biological Chemical and Radiological Agents) teams and NBC

decontamination companies and/or decontamination platoons. The MAI-General Inspectorate for Emergency Situations has additional specialized assets that could be deployed in response to a biological incident, such as the CBRN First Research & Assessment Team, the Special Unit for Intervention in Emergency Situations (with various components such as the Pyrotechnical/EOD Detachment, CBRN Protection Detachment, Search & Rescue Detachment, and the Assistance & Maintenance Detachment), and decontamination capabilities for personnel, equipment, and terrain. The Romanian Police NBC Unit also participated but its capabilities only include sampling and transportation of biological agents and not detection/identification.

At the conclusion of BIOEX '09, participants agreed that the CPX accomplished its goals of evaluating the command and control functions within the Romanian *National Crisis Management System*.

The Romanian Ministry of Defense personnel is trained and specialized to provide field epidemiological investigations in public health emergencies, whether natural or deliberate. However, COL Răduţ stressed that there is a continuous need for special training through exercises and courses in medical management of the emergency situations; furthermore, dedicated vehicles are needed to be used by the mobile preventive medicine teams in affected areas.

Of note, Romania gave a presentation on *Bioterrorism Emergency Preparedness and Response* (which included an overview of BIOEX '09) at the 2010 BWC Meeting of Experts (23-27 August 2010, Geneva, Switzerland), available online at: http://www.unog.ch/80256EDD006B8954/(httpAssets)/98B9D8093790740CC12577AC00490301/$file/BWC_MSP_2010-Presentation-100827-AM-Romania.pdf

BIOEX '09 CPX capabilities demonstration (Tulcea, Romania, 2009)

"In Decision No. 105/15.12.1995 the Supreme Council for the Country Defense approved the "Plan for a joint intervention of the Ministry of National Defense and the Ministry of Interior in limiting and mitigating the effects of disasters on the national territory". This was an evolution for crisis management in Romania and resulted in the Civil Protection Law in 1996. The adoption of the Law No. 106/25.09.1996 represented a landmark in the history of civil protection in Romania. It provided a coherent framework for a new civil protection structure based on the existing risk factors in such a way that operational intervention in crisis situations (which were actually or potentially affecting the social, economic, or environmental conditions in an area) was harmonized with the specific aspects of the territory.

The very first article in the law began with, "Civil Protection is part of the national defense and contains the ensemble of measures and activities aimed to protect the country's population, assets, cultural values, and environment in the event of an armed conflict or disaster." The law regulated the organization, functioning, and duties of the authorities, institutions, commercial companies, and the population involved in the civil protection at all levels in society. The Prime Minister was nominated Chief of Civil Protection with the task of coordinating and exercising control over all related activities in the Minister of Defense. The Civil Protection Command (hereafter CPC) encompassed county inspectorates, civil protection commissions, units and subunits of civil protection, and military teams for civil protection".

- Crisis Management in Transitional Societies: The Romanian Experience, 2007, Crisis Management Europe Research Program, Volume 33 -

The *Inter-Ministerial Council for Export Control of Dual Use Goods and Technologies*, the *Inter-Departmental Group for Non-Proliferation*, and the *Inter-Ministerial Council for Counter-Terrorism* are the relevant structures for Romania's non-proliferation activities, both at policy and technical levels. They also ensure Romania's implementation of UN Security Council Resolution 1540 (2004).

The governmental institutions which comprise the *National System for Preventing and Combating Terrorism* (established in 2004) have memoranda of agreement in place to delineate their responsibilities and the framework of collective action.

Of note, an agreement was signed in 2008 between the Ministry of Administration and Interior, Ministry of Health, Ministry of Environment, the National Sanitary Veterinary and Food Safety Authority, and the National Authority for Consumers Protection, to establish a *Biological Emergency Support Team* (BEST). BEST consists of technical experts from the participating agencies and their role is to offer, upon request, scientific advice and guidance on consequence management operations to the Incident Commander as well as facilitating the information exchange between agencies. In accordance to the signed agreement, the agencies also agree to exchange of information on best practices and specific scientific methods and technological approaches to biological incident investigations, sharing relevant domestic and international statistical data, and participation in common training activities (workshops, exercises, etc).

Within the *National System for Preventing and Combating Terrorism*, the Romanian Intelligence Service (SRI) has the legal responsibility for preventing and combating bioterrorism (Public Law 335/ 25 Nov 2004). In November 2001, the SRI established the Department for Liaison with Public Authorities and Non-Governmental Organizations (DLAPON), in order to promote a dialogue, education, and public outreach on national security objectives.

Recognizing the role of civil society in national security, the SRI established the *Centre for Information on Security Culture* (CICS) on 30 September 2003, to actively pursue partnerships with non-governmental organizations and public engagement. One of the Centre's initiatives (a partnership between SRI, EURISC Foundation, NATO House and the All@ Student Team) is the *Campaign for the promotion of security culture among the youth*, suggestively entitled *"Terrorism … near us"*. The campaign is intended to promote threat awareness and build a culture of responsibility in academia.

COL Robert Lipnick, Chief, Communications, Standards & Training Division, Armed Forces Health Surveillance Center (AFHSC) described the AFHSC mission to promote, maintain, or enhance the health of military and military-associated populations; the Defense Medical Surveillance System (DMSS), and the AFHSC Division of Global Emerging Infections Surveillance and Response System (GEIS) Operations (http://www.afhsc.mil/geisPartners). AFHSC/GEIS promotes, expands, and executes strategic goals of surveillance and detection, response and readiness, integration and innovation, and cooperation and capacity building. The GEIS priority surveillance pillars are: respiratory infections, especially influenza; gastrointestinal infections; febrile illness syndromes, especially dengue and malaria; antimicrobial resistance; and sexually transmitted infections. The GEIS mission is "to successfully develop, implement, support, and evaluate an integrated global emerging infections surveillance and response system that supports the AFHSC and contributes to force health protection in U.S. Forces, the Military Health System (MHS), and the global public health community". The DOD-GEIS central hub leverages the surveillance and response assets of a network of DOD service hubs and overseas medical research units. The DOD-GEIS consortium in the US includes the US Army Public Health Command, Aberdeen Proving Ground, MD; US Army Medical research Institute of Infectious Diseases (USAMRIID), Fort Detrick, MD; Naval Health Research Center, San Diego, CA; Naval Environmental Health Center, Norfolk, VA, and the US Air Force Global Surveillance Office, Brooks Air Force Base, TX. DOD-GEIS has established strong working relationships with the US Centers for Disease Control and Prevention (CDC) and international health agencies.

The current challenges of the GEIS and its partner network are to embrace an expanded global perspective that can be expressed as follows:

Think as partners, not as individuals.
Think as systems, not as institutional programs.
Think globally, not regionally.

COL Lipnick also described the partnership between AFHSC and the Center for *Disaster* and Humanitarian Assistance Medicine (CDHAM) in providing international training opportunities. This partnership led to 19 training initiatives in 8 different countries with 1,057 people trained between September 2008 and October 2009 in USEUCOM. CDHAM was formally

established at the US Uniformed Services University of the Health Sciences (USUHS) by the Defense Appropriations Act of 1999. Organized within the Department of Military and Emergency Medicine at USUHS, CDHAM is postured as the US Defense Department's focal point for academic aspects of medical stability operations. Its mission is "to provide support to Department of Defense agencies, through education and training, consultation, direct support and scholarly activities, regarding the role of military health care in response to disasters and humanitarian assistance missions" (http://www.cdham.org).

The Civil Military Emergency Preparedness (CMEP) Program of the US Army Corps of Engineers (USACE) was described by **Ms. Marypat Moller, Project Lead, CMEP, USACE.** The CMEP program supports international partner nations' national and regional strategies related to disaster preparedness and consequence management for all hazards including the development and exercise of national and regional plans. USACE has been responsible for managing activities of CMEP in Europe and Central Asia since 1998 (more than 90 events organized since then). The goals of CMEP are to develop professional civil-military emergency management competence and experience in partner nations (non-NATO) to:

- Support national and regional strategies relating to disaster preparedness and consequence management
- Create reliable cooperative civil-military planning processes that are sustainable using Internet applications
- Assist countries in developing regional and national plans for catastrophic disaster response
- Facilitate inter-ministerial disaster preparedness and response cooperation as well as with international and nongovernmental organizations.

Ms. Moller also discussed the coordination of CMEP with European instruments for civil protection such as European Commission Monitoring and Information Center (MIC) to facilitate cooperation in civil protection assistance interventions in the event of major emergencies which may require urgent response actions. Of note, non-EU countries affected by a disaster can also make an appeal for

assistance through the MIC and the response in such countries is executed in close cooperation with other international entities, e.g. the UN Office for the Coordination of Humanitarian Affairs (OCHA), the European Commission's Humanitarian Aid Department (ECHO), and the Red Cross when these are present on the ground. The Common Emergency Communication Information System (CECIS) is utilized by MIC and the National Contac Points and it hosts a database of potentially available assets for assistance, to handle requests for assistance on the basis of these data, to exchange information and to document all action and message traffic.

During emergencies the MIC plays three important roles:

- Communications hub
    - The MIC acts as a focal point for the exchange of requests and offers of assistance. This helps in cutting down on the participating states' administrative burden in liaising with the affected country. It provides a central forum for participating states to access and share information about the available resources and the assistance offered at any given point in time
- Information provision
    - The MIC disseminates information on civil protection preparedness and response to participating states as well as a wider audience of interested. As part of this role, the MIC disseminates early warning alerts on natural disasters and circulates the latest updates on ongoing emergencies and interventions.
- Supports coordination
    - The MIC facilitates the provision of European assistance through the Mechanism. This takes place at two levels: at headquarters level, by matching offers to needs, identifying gaps in aid and searching for solutions, and facilitating the pooling of common resources where possible; and on the site of the disaster through the appointment of EU field experts, when required.

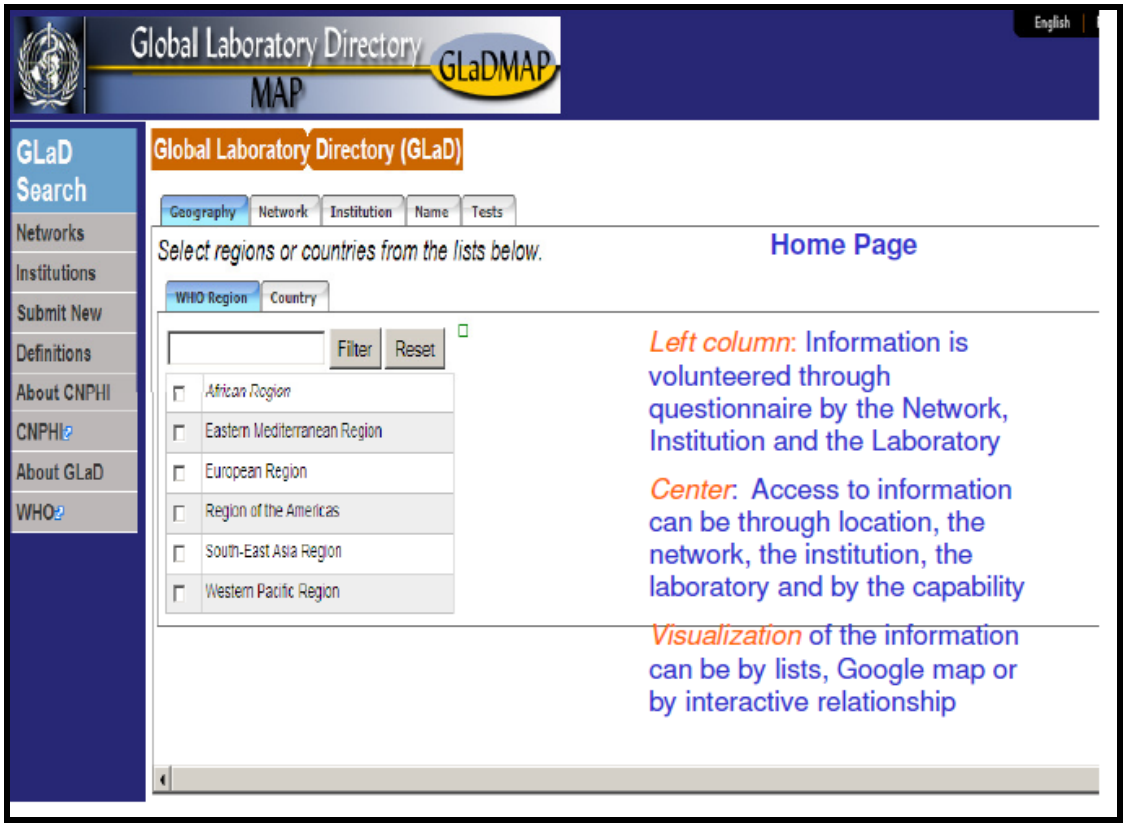
Laboratories play a critical role in the timely detection of biological threats thus enabling a rapid public health response. However, laboratory capabilities and capacities vary widely around the world. The national public health preparedness and response are strengthened by participation in laboratory networks at the local, regional, and global level, and personnel training.

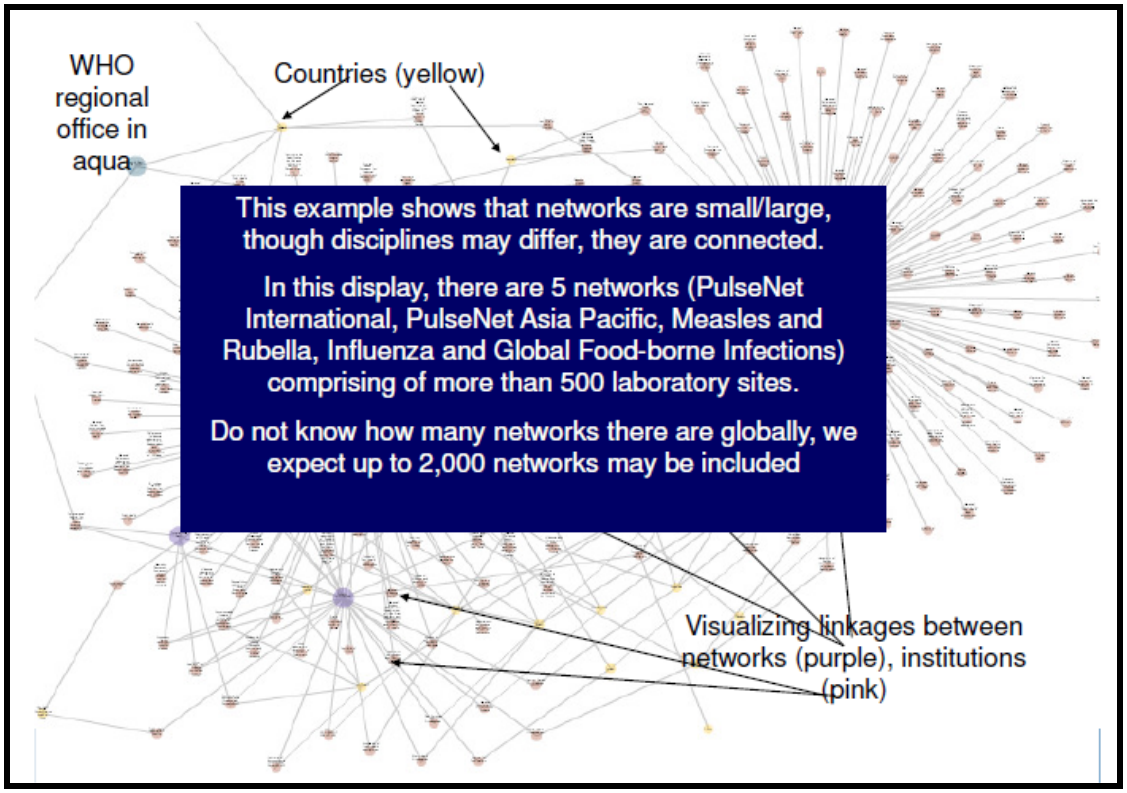
Dr. Thomas Hofmann, Area Coordinator IHR, WHO Regional Office for Europe (WHO-EURO) presented an overview of The Global Laboratory Directory (GLaD) which is a *support system designed to build, connect and maintain laboratory/surveillance networks.* The focus is to map networks that are involved with infectious (epidemic-prone) diseases affecting humans and animals and of those handling environmental and non-biological hazardous sample testing. Such networks are resources that provide evidence-based information to help identify and contain potential public health emergencies of international concern under the International Health Regulations (IHRs).

Dr. Hofmann also demonstrated practically how to access the website of GLaD (http://www.GLaDMap.org) and encouraged the laboratory managers from the countries attending the forum to have their laboratories join the network in order to take advantage of GLaD opportunities on:

- *Connectivity*: add value and link to others
- *Recognition*: give visibility to the Network and its members
- *Collaboratio*n: share experiences and resource
- *Purpose*: business operability and sustainability of laboratory networks

GLaD members (laboratory networks and individual laboratories) can filter the information accessible publicly.





Slide courtesy of Dr. May Chu (WHO)

The Global Laboratory Directory (GLaD) has the following components:

GLaD*Map*

It is a real-time mapping tool that links networks and their member sites.
It is based on a combination of "Yellow Pages" directory concept with the links of a social "Facebook" community. It provides a visual depiction of the interactive relationships of the networks and their member sites using a visualization tool that displays information provided by the network and member laboratories themselves.

GLaD Support

GLaD Support is an activities platform linking networks and their members to interact within their network and with others. *GLaD Support* will: 1) keep a message board for networks to post announcements, open invitations to meetings and training opportunities, 2) give strategic guidance and assistance to existing and new networks, 3) create opportunities to connect ***laboratory network managers*** and, 4) organize meetings and forums for sharing practical information and proven best practices that keep networks functional and active.

GLaD*Resource*

It is a resource centre in a secured communication environment in order to facilitate exchange of experiences, practices, information, laboratory data, research ideas, questions and answers. It is an archival service where networks share their tools, templates and materials. It provides access to: 1) templates (agreements, contracts, multi-center study formats, etc.), 2) network tools (i.e. lexicon, managing membership, quality standard monitoring, etc.), protocols (for evaluations, reference panels, wet-laboratory exercises etc.) and successful solutions and techniques (advocacy techniques, shipping specimens, etc.), and 3) a self-learning e-platform offering topics for professionals so they can learn about scientific advancements, management practices and organizational skills.

"Global health security is everyone's responsibility. Uniting scientists and their expertise into networks is one way to strengthen response, build capacity and share with others at local, regional at global levels.

Successful models of cooperative networks-- Global Outbreak and Response Network, the UN agencies (World Health Organization, Food and Agriculture Organization)- supported networks, the World Animal Health Organization (OIE) reference networks, PulseNet International and its sub-regional networks-- are examples of functional networks and a testament that networks do provide the connection and are irreplaceable repositories of experience and knowledge.

Paradoxically, even as the scientific community recognizes that it is easy to form a network, it also recognizes that sustaining the work of the networks can often be challenging.

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During the past two decades, we have witnessed significant change in the way scientific communities share experiences, exchange methods and ideas, expertise and resources through the use of the internet and satellite technologies. The ease of travel, access to e-journals, rapid internet searches, daily outbreak updates and virtual meetings further create opportunities to meet and connect in ways never possible before. These electronic gateways are becoming more accessible to even those laboratories which have been the most remote or isolated.

Scientists, laboratories and networks have embraced these developments, but the challenge is to capture and share this ever-expanding, vibrant, science-based connectivity and to find ways to support the viability of laboratory networks."

Global Laboratory Directory (GLaD) Brochure (http://www.GLaDMap.org)

Dr. Ed Maes, Chief, U.S. Centers for Disease Control and Prevention (CDC) - Georgia Country Office, U.S. Department of Health and Human Services, gave a presentation on the CDC Global Disease Detection Program (GDD) and the Field Epidemiology (and Laboratory) Training Program (FELTP).

The CDC's Global Disease Detection (GDD) program was established in 2004 to rapidly detect and contain emerging health threats. The program comprises both field-based and CDC headquarters components.

In December 2009, CDC's Division of Global Disease Detection and Emergency Response was officially designated by WHO as a Collaborating Center for Implementation of the International Health Regulations National Surveillance and Response Capacity. The tenure will be effective through 2013, and marks a significant step for the program. As a WHO Collaborating Center, GDD will coordinate a full range of expertise and resources in each of the WHO regions and build national core capacities to meet the minimal IHR requirements in surveillance and response. Of note, CDC is home to over 30 WHO Collaborating Centers, many of which can support critical capacity building for IHR.

Rapid detection and response to disease threats anywhere in the world requires a strong network with global reach. In addition to the GDD Regional Centers that work closely with host countries and regional partners, other headquarter-based components play a significant role in working with other international organizations such as WHO and the Global Outbreak Alert and Response Network (GOARN), other U.S. government agencies, and other partners.

A central focus of GDD is establishing and expanding GDD Regional Centers that build broad-based public health capacity in support of the IHR. CDC currently operates seven GDD Regional Centers worldwide (in Kenya, Thailand, Egypt, China, Guatemala, and Kazakhstan) at varying levels of capacity and it plans for 6 more by 2020 (http://www.healthypeople.gov/2020/topicsobjectives2020/pdfs/GlobalHealth.pdf).

GDD Regional Centers work with the host country and within the region to develop six core capacities (see appendix for detailed descriptions):

- Emerging infectious disease detection and response;
- Training in field epidemiology and laboratory methods;

- Pandemic influenza preparedness and response;
- Zoonotic disease research and containment at the human-animal interface;
- Health communication and information technology;
- Laboratory systems and biosafety.

GDD provides tactical support through its Technical Support Corps, a cadre of scientists based at CDC headquarters who provide 24/7 direct support to GDD Regional Centers and facilitate aid to the field in prolonged or complex emergencies.

The GDD Operations Center is an innovative epidemic intelligence and response operations unit located at CDC headquarters. It uses nontraditional surveillance methods to provide early warning about international disease threats so CDC can respond rapidly to protect public health in the United States and the global community. A key source of information about disease events is internet-based media reports, scanned for key words in over 40 languages. The unit is staffed with experts in infectious diseases, veterinary medicine, medical microbiology, epidemiology, and information technology, and an emergency coordinator to facilitate deployment of international teams. The Operations Center also serves as CDC's liaison with GOARN, receiving and responding to requests for international assistance to control disease outbreaks.

For more details on GDD accomplishments, see the *GDD Program 2009 Monitoring and Evaluation Report* (published April 2010) available online at: http://www.cdc.gov/globalhealth/gdd/pdf/GDD_report_FF_508_52510.pdf

GDD Regional Centers strengthen in-country and regional public health capacity for outbreak detection and response through short-term, classroom-based instruction and more rigorous, in-depth instruction and training of senior epidemiologists through the Field Epidemiology (and Laboratory) Training Program (FETP).

CDC's Division of Public Health Systems and Workforce Development (DPHSWD) works with Ministries of Health (and Agriculture) in Partner countries to strengthen public health systems and develop the workforce using solid science, innovative programs; and build sustainable capacity to meet our partners' national priorities. Strategic areas include:

- Applied epidemiology: Strengthen countries' epidemiology workforce through residency-based applied epidemiology program - the Field Epidemiology Training Program (FETP) and the Field Epidemiology (and Laboratory) Training Program (FELTP);

- Surveillance systems: Strengthen countries' public health surveillance & response systems for priority disease conditions;

- Public health management: Improve public health management capacity in developing countries.

Dr. Maes also discussed the *Southern Caucasus Field Epidemiology and Laboratory Training Program (SCFELTP)* established in 2008 in Georgia for training personnel from the Ministry of Health and Ministry of Agriculture from Georgia, Armenia, and Azerbaijan. The program consists of 25% class activities and 75 % field work. While in class, trainees take courses in epidemiology, communications, economics, and management. They also learn about quantitative- and behavior-based strategies. In the field, trainees conduct epidemiologic investigations and field surveys, evaluate surveillance systems, perform disease control and prevention measures, report their findings to decision-makers and policy-makers, and train other health workers. The Field Epidemiology and Laboratory Training Program (FELTP) offers an added laboratory component to the basic FETP, aiming to build and strengthen the bridging between laboratory services and epidemiology and thus improve surveillance and outbreak response.

FETPs are developed as Ministry programs, not CDC programs. The program is usually located in the Ministry of Health and is tailored to the country needs and priorities.

Because of the limited expertise in the country in applied epidemiology at the beginning of the program, the CDC resident advisor plays a key role in the first phase of implementation. In the beginning, the resident advisor is responsible for most of the teaching and almost all of the mentorship and field supervision. This limits the number of trainees in the early cohorts. As the program progresses, FETP graduates can be identified to take on some of these roles and more trainees can be added.

Because this is a Ministry program, the goal is for CDC to provide enough technical assistance and support for the respective ministry to be able to conduct the program on its own within 4-6 years. Finally, the CDC team members working with the Ministry can identify needs for additional expertise and facilitate collaborations with other experts at CDC or elsewhere.

Key features of FE(L)TP:

- Country ownership of program
- Program tailored to country needs & priorities
- Resident advisor for first phase of implementation
- Plan for sustainability
- Partnership enables additional collaborations with CDC & others

FE(L)TP sustainability indicators:

- MOH has ownership of program
- Plan for sustainability exists
- Training program is progressing towards sustainability
- Accreditations received are documented & recognized
- Strengthened public health workforce is indicated by graduates of the program retained in public health system
- Laboratory & epidemiology are integral partners in surveillance & outbreak investigations
- Evidence-based policies/regulations created or improved due to program/trainees

For more information on FE(L)TP please visit: http://www.cdc.gov/globalhealth/fetp

Start year	Program	Countries (RA†)
2000	Central America Regional FETP (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras)	5 (3)
2001	China FETP	1 (2)
2003	Central Asian Republic FETP (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan)	5 (1)
2004	Kenya Regional FELTP (Kenya, South Sudan)	2 (1)
2004	South Africa FELTP	1 (2)
2006	Pakistan FELTP	1 (1)
2006	India FETP (New Delhi)	1
2008	Ghana FELTP	1 (1)
2008	Nigeria FELTP	1 (2)
2008	Tanzania FELTP	1 (2)
2008	South Caucasus Regional FELTP (Georgia, Armenia, Azerbaijan)	3 (2)
2009	Ethiopia FELTP	1 (1)
2009	Iraq FETP	1 (1)
2010	West Africa (Burkina Faso, Mali, Niger, Togo)	4
Total	**14**	**28 (19)**

With regard to the possibility of establishing a *Field Epidemiology and Laboratory Training Program* for Romania and Moldova, Dr. Maes explained that the planning, developing and implementing an FETP can be a long process. There are several steps that must take place before the first cohort of trainees can begin. These include ensuring the level of MOH commitment, developing a concept paper with the involved partners, securing funding, performing and in-country assessment, establishing a steering committee of the in-country partners, and developing a country plan with the MOH priority diseases. The curriculum must be developed and customized to the ministry needs. The resident advisor is placed during the development process, after the funding is secured but usually before the first cohort of trainees begins.

In order for an FETP to be successful, the MOH must be actively engaged and supportive. Access to surveillance data and support for investigations are critical for the trainees to have a meaningful experience. To attract the best trainees to the program, the ministry must provide support for the trainees during the program and develop an attractive career ladder for them after graduation. For the program to move toward sustainability, the ministry must provide an MOH employee to serve as the counterpart to the resident advisor. This counterpart has an important role to ensure that trainee has access to data, the field, and gets cooperation from other involved parties. Important for the success of the program is the ability of the consultant to succeed. It is important for the MOH to have ownership of results of the investigation and help put control or prevention measures into practice.

With the worldwide expansion of public health research on emerging threats and bioterrorism preparedness and the new construction of high- and maximum containment laboratories (such as the new BSL-4 laboratory of Romanian Ministry of Defense), a comprehensive education and training program in BSL-2, BSL-3, and BSL-4 laboratory safety practices is needed for the scientists and other laboratory personnel working in these laboratories.

In particular for BSL-4 laboratories, considering the level of risk posed by biological agents that can be researched in such a lab, personnel training is critical and should include to a minimum, theoretical consideration of biocontainment principles, practical hands-on training, and mentored on-the-job experiences relevant to positional responsibilities before a person's independent access to a BSL-4 facility.

Such training also helps building confidence in the public, policy makers, and security officials that the biodefense laboratories will continue to be operated safely and will pose no risk to scientific personnel, local communities, or surrounding environment.

Of note, there are two models for BSL-4 laboratories: (A) the Cabinet Laboratory where all handling of the agent is performed in a Class III Biological Safety Cabinet, and (B) the Suit Laboratory where personnel wear a protective suit. Biosafety Level-4 laboratories may be based on either model or a combination of both models in the same facility.

BSL-4 laboratory scene courtesy of Romanian MOD

(presentation at the BIOEX '09 CPX, Tulcea, Romania, 2009)

The United States has developed a program called the National Biosafety and Biocontainment Training Program (NBBTP). This program was developed by the Division of Occupational Health and Safety (DOHS) at the National Institutes of Health (NIH), U.S. Department of Health and Human Services, in Bethesda, Maryland. The NBBTP is administered by the Frontline Healthcare Workers Safety Foundation, a not-for-profit, education and research foundation (see: http://www.nbbtp.org). Frontline Healthcare Workers Safety Foundation seeks to make a mirror of this program available internationally called the International Biosafety and Biocontainment Program.

Dr. Gretchen Demmin, Executive Director, International Biosafety and Biocontainment Training Program (IBBTP), Frontline Healthcare Workers Safety Foundation Ltd, Atlanta, USA, provided an overview of the proposed IBBTP training and sought collaborators who might be interested in serving as a designated training center for their regions.. Of note, Dr. Demmin served as the USAMRIID Biosurety Officer and Director of Safety, Biosurety Operations, Plans and Security (2004– 2008) and joined The Frontline Foundation in October 2009 after retiring as a Lieutenant Colonel in the US Army with a career covering 22 years.

IBBTP consists of:

1) Providing Professional Development Courses (PDCs) for biosafety professionals on two curriculum tracks: Operations & Maintenance and Biosafety & Biocontainment.

Sample Professional Development courses along the Operations and Maintenance track include:

- Introduction to Microbiology and Biosafety
- Introduction to Biosafety and Biocontainment
- Fundamentals of Laboratory Mechanics
- Laboratory Systems, Utilities and Maintenance Part I & Part II
- Laboratory Systems: Continuity of Operations Planning
- Laboratory Commissioning and Certification

2) Professional Certificate Programs for biosafety professionals and laboratory personnel on two curriculum tracks: Operations & Maintenance and Biosafety & Biocontainment. Each certificate program provides evidence that the participant has completed standardized required coursework as well as a work practicum, and a final project. IBBTP offers a 4.5 day series of courses in Biosafety and Biocontainment that address the knowledge and skills necessary for biosafety professionals, researchers and laboratorians to meet the scientific, regulatory, biocontainment, biosafety, and engineering challenges associated with the conduct of biomedical, biodefense, and emerging disease research. The program will provide hands-on experience in BSL-3 and BSL-4

facilities and prepare trainees to meet the needs of the biodefense and emerging diseases research fields in the 21st century. Each course is accredited through IACET (the International Association for Continuing Education and Training).

Topics addressed on the Biosafety & Biocontainment track include:

- Principles of Biosafety and Biocontainment
- Microbiology Essentials and Pathogenesis for Biocontainment Professionals
- The Biological Risk Assessment Process
- Decontamination, Disinfection and Sterilization
- Integrated Biocontainment Laboratory Safety: Regulations and Guidelines
- Aerobiology
- Biocontainment Laboratory Equipment
- Biocontainment Laboratory Emergency Planning and Response
- Biocontainment Laboratory Security

3) Fellowship Programs. The post baccalaureate and post-doctoral IBBTP Fellowship provides professional training in biosafety and biocontainment at various partnering location in the US and abroad, immersing tomorrow's biocontainment laboratory leadership in coursework, applied biosafety research, and experimental learning assignments.

The IBBTP offers professional certificate programs, distance learning and on-site training internationally in response to institutional requests or at designated training facilities.

MAJ Thomas Palys, Chief, Infectious Disease Laboratory, Army Landstuhl Regional Medical Center (RMC) and CDR Michael Cooper, Epidemiologist, US Army Public Health Command-Region Europe (PHCR-Europe), discussed the laboratory capabilities at Landstuhl RMC (Landstuhl, Germany), the two pronged surveillance for influenza (clinical versus lab-based surveillance) and the establishment in 2006 of an *Enhanced Influenza Surveillance Program* in Europe, with funding from the AFHSC Division of Global Emerging Infections Surveillance and Response System

(GEIS). This is a tri-service (US Army, Navy, Air Force) program where all the medical treatment facilities (MTFs) in EUCOM (about 40 of them, located in eight European countries- Belgium, England, Germany, Italy, Kosovo, Portugal, Spain, Turkey) as well as other sites/countries are encouraged to participate year-round (from 01 October to 30 September) not only in the 'flu season', as the best defense against a possible pandemic. The program is laboratory-focused and other viruses also detected (RSV, adenovirus, parainfluenza, etc) not only influenza.

The case definition of "Influenza-Like Illness" (ILI) according to DOD case definition for ILI refers to: **FEVER** ≥100.5°F (38°C) *plus* **COUGH** &/or **SORE THROAT** with symptoms onset within 72 hours of presentation.

It is important that the same case definition is used by non-US sites in order to ensure consistency of the results and trend analysis.

The joint responsibilities of Landstuhl RMC and PHCR-Europe in the *Enhanced Influenza Surveillance Program* are summarized below:

- The Department of Microbiology at the Landstuhl Regional Medical Center (Landstuhl RMC) provides collection supplies (e.g. Influenza Surveillance Collection Kits)

- Medical Treatment Facilities (MTFs) or other public health sites in Partner countries send specimens to Landstuhl RMC for viral culture/PCR
    - For MTFs: laboratory results are available in AHLTA- patient electronic medical record or in the Composite Health Care System (CHCS)- which is the electronic medical record for laboratory results
    - For sites in Partner countries not using CHCS or AHLTA: results may be transmitted by email, fax, etc

- Landstuhl RMC sends flu positives to USAFSAM/DOD
    - CDC may request certain flu isolates for further analyses
    - May contribute to next season's vaccine

- The Department of Epidemiology at PHCR-Europe analyzes data
    - Distributes surveillance reports (respiratory virus activity) to Public Health Emergency Officers, Host Nation, Preventive Medicine, GEIS, and the U.S. Air Force School of Aerospace Medicine (USAFSAM)
    - Final report of season will include vaccine effectiveness and vaccine coverage

MAJ Palys and CDR Cooper also described the Influenza Surveillance Collection Kit Contents (i.e. 2 flocked nasopharyngeal swabs, tube with Universal/Viral Transport Medium (VTM), Surveillance questionnaire, and Specimen submission bag). Collection kits were distributed for practical demonstration to forum participants. Two swabs are collected per each sample with "Influenza-Like Illness" (ILI), one per each nostril. Nasal wash is an acceptable specimen type as well. Specimens should be refrigerated immediately after collection, packed, and shipped in accordance with the European Agreement Concerning The International Carriage Of Dangerous Goods By Road (ADR) and/or the International Air Transport Association (IATA), and shipped frozen with dry ice (if possible) or using freezer packs. Video clips for refresher training were included on the disks provided to participants at the end of forum proceedings.

MAJ Palys and CDR Cooper invited Romania and Moldova to take advantage of this program, request collection kits, and submit specimens for testing at Landstuhl. The average turn-around time for direct country referrals is from 4 to 14 days. Of note, while the testing is free, associated shipping costs of specimens (for instance from Romania or Moldova) are not covered by the program and need to be supported by the respective national programs/public health systems.

The Landstuhl Regional Medical Center (LRMC) is the largest American hospital outside of the United States, and the only American tertiary hospital in Europe. The center opened March 9, 1953, as the 2nd General Hospital. LRMC provides primary care, tertiary care, hospitalization and treatment for more than 245,000 U.S. military personnel and their families within the European Command. LRMC is also the evacuation and treatment center for all injured U.S. service members and contractors as well as members of 44 coalition forces serving in Afghanistan, Iraq, as well as Africa Command, Central Command, European Command and Pacific Command. It is located in the German state of Rheinland-Pfalz. The staff at LRMC is composed of 2,837 military and civilians. See: http://ermc.amedd.army.mil/landstuhl.

The Laboratory of Microbiology at LRMC is the designated DOD referral laboratory in EUCOM for both year-round and pandemic influenza testing. The laboratory provides clinical microbiology, virology, and immunology testing

The mission of the US Army Public Health Command-Region Europe (PHCR-Europe) (http://www.chppmeur.healthcare.hqusareur.army.mil) is to establish and operate an epidemiological resource for the United States Department of Defense; to provide quality epidemiology information and disease outbreak investigation services to EUCOM commanders, health care personnel and decision makers in an effort to reduce injuries and disease, improve quality of life, and enhance readiness. PHCR-Europe **services** include outbreak investigation and response, health surveillance, training and education, travel and deployment medicine, and communicable disease consultation.

PHCR-Europe assists LRMC-Microbiology as needed and provides Influenza Surveillance reports to EUCOM, Service Components, and MTFs.

The PHCR-Europe Pandemic Influenza Watchboard is located online at: http://www.chppmeur.healthcare.hqusareur.army.mil/sites/pi/pi.aspx

Lessons Learned and Recommendations

From the organizers' point of view, the didactic part of the forum proceeded generally well and accomplished its stated goals to familiarize participants with:

- WHO's revised International Health Regulations (2005), Global Outbreak Alert & Response Network (GOARN), and the Global Laboratory Directory (GLaD);
- The Biological Weapons Convention (BWC) mechanism and instruments for an internationally coordinated approach to combating biological threats and requesting technical assistance for implementation;
- The UN Secretary-General's Mechanism (UNSGM) for Investigation of Alleged Use of Chemical and Biological Weapons and its key elements [trigger procedures under the BWC, use of the UNSGM roster of experts and laboratories, and the guidelines and procedures for the conduct of investigations as updated by the UN Office of Disarmament Affairs (UNODA)];
- Ways and means for requesting technical assistance with the UN Security Council Resolution 1540 (UNSCR 1540) implementation;
- NATO's resources for assistance to Partner countries, its Deployment Health Surveillance capability development, Defence Against Terrorism Initiative, and NATO's recent (2009) Comprehensive, Strategic-Level Policy for Preventing the Proliferation of Weapons of Mass Destruction (WMDs) and Defending against CBRN Threats;
- Interpol's Bioterrorism Prevention Program and its resources for assistance to member countries.

It also provided a common understanding of each other's national response frameworks, including, *inter alia*: laboratory capabilities, national plans and responsible authorities for bio incident consequence management, exercises/training in support of national plans, whole-of-government and regional collaboration approaches and/or plans for national/international information sharing and notification, epidemiological/law enforcement investigations, consequence management and coordination of assistance).

The US programs focused on international engagement and assistance, highlighted here, i.e. CDC's Field Epidemiology (and Laboratory) Training Program, NIH's National Biosafety and Biocontainment Training Program, EUCOM's Enhanced

Influenza Surveillance Program, and USACE Civil-Military Emergency Preparedness Program, could provide opportunities for furthering the bilateral collaboration between the Republic of Moldova and Romania and their partnership with the United States in preparedness and response to potential public health emergencies of international concern.

There are however a few lessons learned that should be taken into consideration when planning similar events to improve the overall quality of training:

Planning:

- Planning for the training event should start optimally at least 6 months in advance to allow for coordination of travel and organizational details (to ensure an appropriate balance of public health, law enforcement, and security personnel in attendance); the translation of presentations and the quality control of translation products; and inclusion of all presentations and relevant background materials on disks for participants (IMPROVE);

Content:

- The workshop had the right mix of strategic (policy-level, inter-governmental), tactical, and operational briefings, both civilian and military, to engage a very diverse audience (SUSTAIN);
- While the training schedule was full, consideration should be given for inviting the Organization for Security and Co-operation in Europe (OSCE)'s Anti-Terrorism Unit at future events to address the coordination of OSCE's counterterrorism activities, member capability development, and information sharing (IMPROVE)

Execution:

- Assign personnel to ensure in advance of the formal start of training day that the A/V equipment is functional, speakers are given the necessary instructions on its use, and all presentations for the day are loaded and displayed correctly on the screen (IMPROVE)

NATIONAL CENTER FOR PUBLIC HEALTH - SITE VISIT

At the invitation of Dr. Ion Bahnarel, Director of the National Center for Public Health in Chisinau, Republic of Moldova, representatives of delegations from US and Romania and inter-governmental organizations visited the National Center for Public Health of Moldova (comprised of 47 sub-units or divisions, such as National Centre of Scientific Practice for Preventive Medicine, National AIDS Center, the Center for the Epidemiology of Extremely Dangerous Diseases and for Combating Bioterrorism, etc). The National Center for Public Health holds several national and international accreditations including from WHO and UNICEF (on vaccine storage and cold chain maintenance), IAEA, and the European Union. The laboratories are intended to perform diagnostic testing for potential chemical, biological, radiological agents of terrorism. New areas that the Center is working on to implement effectively include, inter alia, the integration of the national epidemiological alert and surveillance system in the European Union framework and implementation of WHO/FAO and *Codex Alimentarius* standards for food safety and security.

Dr. Ion Bahnarel, Director of the National Center for Public Health, showing visitors the flag of the National Sanitary-Epidemiological Service of the Republic of Moldova

Laboratory scene, National AIDS Center

The delegates had the opportunity to visit the BSL-2 laboratories of the *Center for the Epidemiology of Extremely Dangerous Diseases and for Combating Bioterrorism*, the *Strategic National Stockpile*, and the *Museum of the National Sanitary-Epidemiological Service of the Republic of Moldova*

During this visit, Dr. Natalia Caterinciuc demonstrated how the Electronic Epidemiological Alert System in the Republic of Moldova works and she answered questions from the participants. This electronic disease surveillance system (introduced in the plenary session of the trilateral forum by Dr. Stela Gheorghita) was implemented in Moldova in accordance with the Ministry of Health Directive no. 477-d of 31 July 2009 as a national measure toward national implementation of WHO IHRs. The system became operational on 01 January 2010 on the territory of the Republic of Moldova. The system allows the real time monitoring, analysis and assessment of public health indicators and events in the country (integrating demographic clinical, epidemiologic and laboratory data). It routinely collects data about occurrence of diseases and it is complemented by an event monitoring component where information on potential threats is routinely searched for and assessed with the system generating emergency alerts (based on the time occurrence and regional clustering).

There are several access levels to the system (such as: operator, clinician, regional epidemiologist, and national level epidemiologist) and the system is highly secure. Dr. Caterinciuc also demonstrated how the decision instrument provided in Annex 2 of the WHO IHRs is integrated into Moldova's Electronic Epidemiological Alert System

in order to assess the public health events occurring within Moldova's territory and then notify WHO of all qualifying events within 24 hours of such an assessment.

The system can also be used to generate user-defined alerts on:

- CBRN incidents;
- Novel or unknown disease causes;
- Communicable diseases via human-to-human transmission, vectors, or trade goods (including food) and environmental release;
- Public health emergency requiring immediate mitigation;
- Unusual events (not characteristic for the time, space, or population surveilled).

Of note, the staff at the National Center for Public Health also prepared presentations on the activities of the Center for Radiation Protection (within the National Center for Public Health), headed by Dr. Ion Ursulean, but the interest raised by the Electronic Epidemiological Alert System and the already busy agenda did not allow for a formal presentation.

It is significant to note however, that the framework for IHR implementation in Moldova is indeed covering "all hazards" and the radiation protection is an example of Moldova's commitment toward effective and comprehensive IHR implementation. Radiation Protection and Safety are areas covered by legislation and regulations implemented by a National Regulatory Body (National Agency for Regulation of Nuclear and Radiology Activities, ANRANR). The ANRANR works in concert with supporting Public Administrative Bodies (CPAB) in the field of nuclear and radiological protection and safety areas. The CPABs are:

- The Central Body in the field of Public Health;
- The Central Body in the field of Emergency Situations;
- The Central Body in the field of Environment Protection;
- Customs Service Control;
- License Chamber;
- Academy of Sciences of Moldova;
- National Committee for Radiation Protection at the Government of Moldova

For example, the CPAB - Public Health provides testing and assessments of public health threats with main responsibilities listed below:

1. Testing of radionuclides in food stuffs (at all manufacturing stages); potable water (including sources of potable water); construction materials and other materials for population use. The CPAB also issues corresponding quality control certificates for domestic or local production.
2. Monitoring the effect of activities with ionizing radiations sources on public health and developing occupational health standards;
3. Providing public health guidance for radiation protection;
4. Oversight of activities involving nuclear or ionizing radiations sources from a public and occupational health protection perspective;
5. Monitoring of the exposure of the personnel working with ionizing radiations sources, patients undergoing radiological procedures, and the population in case of radiation (nuclear) accidents;
6. Coordination of scientific research on the medical and biological effects of ionizing radiation.

Another presentation, by Dr. Raisa Scurtu, Chief of the Central Sanitary-Hygiene Laboratory, provided an overview of the capabilities and range of activities carried out with regard to the food, air, and water safety, as well as testing of polymeric and synthetic products of wide consumer use.

For instance, the laboratory performs elemental quantification (for Al, As, Cu, Pb, Cd, Zn, Ni, Cr, Hg, Mn, Mg, Fe, Se, Sr, Na, K) in water, food, soil, various materials and air samples. The lab also tests for the presence of various food additives, mycotoxins, histamine, nitrosamine, and benzopyrene in food stuffs. The lab also performs pesticide testing (i.e. testing for the presence of organochlorates, organophosphates, copper complexes, heterocyclic substances, etc, in food, water and soil). The wide range of chemical testing is performed using gas or liquid chromatography, mass spectrometry, and atomic absorption spectrophotometry.

The laboratories comprising the National Center for Public Health have established standard operations procedures (SOPs) and plans for their responsibilities and activities in case of emergencies (whether due to natural, accidental, or deliberate causes).

For example, the Central Sanitary-Hygiene Laboratory headed by Dr. Raisa Scurtu, has specific procedures and plans in place for the situations when the nature of the chemical contaminant is known (i.e. in case of an industrial accident) and also for the situation when the origin and nature of the contaminant is not immediately known.

These SOPs and plans include:

1. General information about CBRN emergencies and consequence management;
2. Norms and regulations;
3. Safety and security measures as well as personal protective equipment;
4. Alerting procedure in case of emergencies due to toxic chemicals;
5. List of potential types of samples to be colected and methods of analysis
6. Laboratory sample collection, transportaion, receiving, and storage
7. Testing equipment and materials
8. Sample testing procedures and standards.

Last but not least, Dr. Ion Bahnarel, Director, National Center for Public Health, gave visitors a passionate presentation of the history of the National Sanitary-Epidemiological Service of the Republic of Moldova during their visit at the museum located on site.

Dr. Ion Bahnarel, Director,
National Center for Public Health

Microbiological media produced in 1977 (top photo) and a colony counter in use between 1966 and 1994 (bottom photo)

OUTBREAK RESPONSE AND BIOTERRORISM INVESTIGATION TRILATERAL (ORBIT) TABLETOP EXERCISE (TTX)

The Outbreak Response and Bioterrorism Investigation Trilateral (ORBIT) **Tabletop Exercise (TTX)** was conducted on the second day of the workshop and consisted of facilitated, informal discussions about general policies, procedures, and courses of action driven by a fictional bioterrorism scenario to encourage and enhance information sharing, as well as prepare for, and coordinate the response to an international bioterrorism incident originating in Tiraspol, Moldova. Workshop participants were provided with the Exercise Situation Manual (EXSIM) as a guide and reference manual for the exercise.

The events described in the ***ORBIT TTX*** scenario were entirely fictional and were not based on any organization's views or opinions that such a bioterrorism event was likely to occur; in addition, the scenario was not intended to debate the operational or technical feasibility of perpetrating such an attack. The initial scenario and associated moves were drafted by Dr. Dana Perkins, HHS/ASPR, and they were revised based on input received from the members of the TTX Planning Team listed below. The choice of biological agents, location of clandestine laboratory, and targets of bioterrorist attacks, as well as any other references to real-world geographical locations or events,

were arbitrary and only intended to stimulate the engagement of as many as possible workshop participants regardless of their particular expertise or nationality.

The main purpose of ***ORBIT Forum TTX*** is to encourage and enhance information sharing, consideration of preventive or deterrent measures, as well as preparation for and coordinated response to a bioterrorism incident originating in Moldova and/or Romania and deemed of potential international concern.

The exercise discussions promoted *inter alia*, common knowledge about various organizations' roles and responsibilities, challenges associated with bioterrorism, and the benefits of inter-sectoral, cross-domain, and international cooperation in prevention, deterrence, and response to biological incidents, whether natural or deliberate.

Participants were informed that the decisions made during exercise discussions and/or their expressed opinions were not for attribution or intended to set any precedents and may not reflect an organization's or nation's official position on a given issue.

Training Objectives

TTX Goals and Objectives

- Strengthen national, regional, and international cooperation and coordination in prevention, deterrence, preparedness and response to a deliberate biological incident
- To foster improved understanding of the roles of civilian and military communities and their respective requirements in preparedness and response to a deliberate biological incident and enhance their joint action and unity of mission at the national and regional level.
- To emphasize the concept that information exchange in the early stages of a biological incident is critical to effectively apprehend the perpetrators and contain the outbreak.
- To review existing legal and regulatory infrastructure of national measures consistent with the obligations under the WHO International Health Regulations (IHRs), Biological Weapons Convention (BWC) and UN Security Council

Resolution (UNSCR 1540) to deter, prevent, or respond to biological incidents or threats, whether natural, accidental or deliberate.

General Mission Areas for Participants' Consideration

- Prevention/Deterrence
- Emergency Assessment/Diagnosis
- Emergency Management/ Response
- Hazard Mitigation
- Evacuation/Shelter/Movement Restrictions
- Victim Care
- Public Health Investigation/Law Enforcement Apprehension
- Recovery/Remediation
    - Environmental Decontamination/Cleanup
    - Personal Decontamination
    - Site Restoration
- Implications
    - Secondary Hazards/Events
    - Fatalities/Injuries
    - Property Damage
    - Service Disruption
    - Economic Impact
    - Long-term Health Issues

Exercise Format

Participants (from the Republic of Moldova, Romania, and US) as well as IGOs and NGOs representatives) were divided into four break-out groups and encouraged to share their views with their group and the forum audience at large. Two TTX Facilitators were assigned per each break-out group. While the TTX scenario deals with the aftermath of certain biological incidents, TTX Facilitators were instructed by Coordinators to be proactive and engage the participants in discussions at each step any relevant international, national, or community-level measures that will prevent/deter such incidents from happening in the first place (as early as possible in the attack planning/execution timeline).

The scenario was introduced in the plenary session by the TTX Coordinator, Dr. Dana Perkins, HHS/ASPR. After each one of the two phases (or "moves") introduction, the TTX Coordinator posed the discussion topics and the TTX Facilitators jumpstarted and coordinated the small group discussions and interactions. A speaker from each group volunteered to share with the general audience possible courses of action based on the group's conclusions, his/her national experience, and the role and responsibility of the organization he/she represented. The TTX Facilitators also joined the volunteer speaker from their group to add, when necessary, more details about the group's debates and decisions. Dr. Stela Gheorghita (National Center for Public Health, MoH, Republic of Moldova) served as TTX Coordinator and also as a TTX Facilitator for one of the break-out groups.

Modeling of the fictional aerosol spray attack was provided courtesy of the Defense Threat Reduction Agency (DTRA) Consequence Management Advisory Team (CMAT) to provide situational awareness and decision support for TTX participants.

1. TTX Planning Team Contact Information

Name	Country	Agency	E-mail	Phone
Dana Perkins	USA	HHS/ASPR	dana.perkins@hhs.gov	+1 202-205-5716
Massimo Ciotti	Italy	ECDC	Massimo.Ciotti@ecdc.europa.eu	+46 8 586 01 119
Thomas Hofmann	Denmark	WHO	hof@euro.who.int	+45-39171440
Joris De Baerdemaeker	Belgium	INTERPOL	J.DeBaerdemaeker@interpol.int	+33 4 72 44 74 15
Matt Wyatt	USA	EUCOM	Matt.Wyatt@eucom.mil	+49 711-680-7459
Robert Lipnick	USA	AFHSC	Robert.Lipnick@us.army.mil	+1 301-319-3248
Adrian Baciu	Romania	APSC	a.baciu@yahoo.com	+40 732138909
Lucian Lerescu	Romania	SPP	Lucius78us@yahoo.com	+40723369350
Claudiu Sbarcea	Romania	SPP	Claudiu1972sba@yahoo.com	+40723594664
Stela Gheorghita	Moldova	MoH	gheorghitastela@rambler.ru	+373 22 574 503
Mihail Pasla	Moldova	MoH	pislamihai@hotmail.com	+373 22 237 073
Oleg Muntean	Moldova	MOD	oleg.muntean@army.md	+ 373 252083
Axel Angely	France	NATO	angely.axel@hq.nato.int	+32 2 707 19 02
Hans Holtherm	Germany	NATO	HansUlrichHoltherm@bundeswehr.org	+498912497588
Franz Kolar	Hungary	UNODA	kolar@un.org	+1 212 963 0188
Edmond Maes	USA	CDC	emaes@cdc.gov	+995 32 244-660
Kevin Theede	USA	FBI	Kevin.Theede@ic.fbi.gov	+995 32 27 79 30

2. TTX Coordinators

Name	Country	Agency	E-mail	Phone
Dana Perkins	USA	HHS/ASPR	dana.perkins@hhs.gov	+1 202 205 5716
Stela Gheorghita	Moldova	MoH	gheorghitastela@rambler.ru	+373 22 574 503

3. TTX Facilitators

Name	Country	Agency	E-mail	Phone
Thomas Hofmann	Denmark	WHO	hof@euro.who.int	+45-39171440
Robert Lipnick	USA	AFHSC	Robert.Lipnick@us.army.mil	+1 301-319-3248
Edmond Maes	USA	HHS/CDC	emaes@cdc.gov	+995 32 244 660
Joris De Baerdemaeker	Belgium	INTERPOL	J.DeBaerdemaeker@interpol.int	+33 4 72 44 74 15
Carl Prober	USA	DOS/VCI/BW	probercg@state.gov	+1 202 647 5655
Matt Wyatt	USA	EUCOM	Matt.Wyatt@eucom.mil	+49 711-680-7459
Stela Gheorghita	Moldova	MoH	gheorghitastela@rambler.ru	+373 22 574 503
Lucian Lerescu	Romania	SPP	Lucius78us@yahoo.com	+40723369350
Claudiu Sbarcea	Romania	SPP	Claudiu1972sba@yahoo.com	+40723594664
Hans Holtherm	Germany	NATO	HansUlrichHoltherm@bundeswehr.org	+498912497588

Scenario Overview

The ideas at the basis of this particular scenario stem from media and open source reports about the breakaway region of Transnistria (which proclaimed its secession from Moldova in September 1990); the region re-asserted its demand for independence and backed a plan to eventually join Russia in a 2006 referendum unrecognized by Moldova and the international community. A large contingent of Russian "peacekeepers" has been place since 1992.

A hotbed of crime (within the internally-recognized borders of Moldova but outside of the normal reach of the Moldovan law enforcement authorities); the undermining of community values by Soviet-style rhetoric, corruption, persistent conflict and poverty; and a decrepit public health system (not subject to the national coordination mechanisms established in Moldova to improve disease surveillance, detection, and response), could constitute critical challenges to the implementation of WHO International Health Regulations and potential threats to the regional and international health security.

Moreover, the risk exists of potential convergence of criminal (e.g. drug or human trafficking) and terrorist networks at the operational level regardless of the presence or absence of a common ideology or a "common cause" between the respective groups. A "money-making opportunity" for a professional smuggler my thus involve using the established drug-trafficking networks to also move WMD materials across borders.

Scientists entangled in this web of corruption and crime but isolated from the international scientific community (which may provide peer-to-peer guideposts for ethical behavior) are at increased risk of misusing the life science research for a profit.

The scenario was not driven to a solution or consensus to the situation in Transnistria but to rather illustrate the role of inter-sectoral and international cooperation as well as individual responsibility in deterring and preventing bioterrorism acts whether they are directed toward the civilian or military populations. The scenario had two sub-plots going on concurrently: 1) a mass casualty attack with genetically engineered tularemia bacteria during a Romania-Moldova soccer game in Chisinau, Republic of Moldova, and 2) a planned (but failed) anthrax attack on the Joint Task Force-East Headquarters at the Mihail Kogalniceanu (M-K) Airbase in Constanta County, Romania.

The questions on the two time points (D day and D+5 days) described in the exercise scenario (or TTX moves) addressed public health, law enforcement, and intelligence courses of action as well as legislative, policy, and voluntary measures to ensure biosecurity.

"As the international community clamped down on state-sponsored terrorism and pressured governments from financially supporting terrorist organizations, many groups resorted to drug trafficking and other illicit activities as sources of revenue.

We lead diplomatic efforts to raise awareness of the destabilizing impact of transnational organized crime and illicit activities and we strengthen global efforts to combat these threats, including through enhanced law enforcement cooperation, where organized crime and terrorism intersect… also by building up governance capacity, supporting committed reformers, and strengthening the ability of citizens to monitor public functions and hold leaders accountable for providing safety, effective public services, and efficient use of public resources"

--- David T. Johnson, Assistant Secretary, Bureau of International Narcotics and Law Enforcement Affairs, US Department of State, 19 Jan 2010 ---

In summary, in the first plot of this scenario, a fictional Moldovan extremist separatist group called *"The Friends of the Dniester"* procured a seed stock of *Francisella tularensis* (tularemia) bacteria from the Transnistria contraband market in order to perpetrate an attack to *"punish the slaves of the West"* during a well-attended soccer game in Chisinau, Moldova between two very popular soccer teams from Romania and Moldova. A PhD student from a local university in Tiraspol named Igor, was recruited and offered a significant amount of money to produce a sufficient amount of bacterial culture to execute the attack.

Of note, in this fictional story, Igor requested advice and technical assistance via online social media and bio-hobbyist websites such as *DYIbio.org* and also from a fellow student scientist from Chisinau whom he told that he is only trying to prove for himself that *"that one could produce large quantities of bacteria in an improvised laboratory at home"*.

In a scenario about fictional bioterrorism events facilitated by the convergence of criminal and terrorist networks in regions of weak governance or "frozen conflicts", the TTX Coordinators considered it is important to stimulate discussions about the community role in promoting ethical and moral values and a responsible conduct of science. In this context, 'community' may be local (family, neighbors, etc) and/or professional [local or virtual (online/internet based)] based on family ties, traditions, geography, or the pursuit of similar interests.

The individual responsibility to prevent the misuse of life sciences should apply regardless whether the scientific activities are pursued in the formal academic environment or in the makeshift, home-based laboratory commonly associated with the Do-It-Yourself Biology (DYI Bio) community and the bio-hobbyists.

In the second plot of this scenario, in summary, the fictional terrorist group called *Friends of the Dniester* also purchased from the black market a certain amount of dry, lyophilized anthrax spores for a food borne attack on the personnel at the Joint Task Force - East at the Mihail Kogalniceanu (M-K) Airbase in Constanta County, Romania. The anthrax powder was transported across the Romanian border via established drug (primarily heroin) trafficking networks in Eastern Europe.

While the attack was never executed (in the story anthrax got mixed with heroin during transport when bags broke and contents spilled over and mixed spores and drugs), the fictional plot promoted specific discussions on: i) ways to address and counter the illicit drug networks and their potential use for trafficking WMD materials; ii) potential challenges posed to the public health system in Constanta County (and lessons learned from the recent UK cases of anthrax-contaminated heroin); iii) ensuring the military base and personnel (bio) security whether the personnel is civilian or military, US or Romanian.

Moldova

Moldova continued to work on implementation of its UN obligations related to terrorist financing. The Government of Moldova welcomed information regarding terrorist financing from the U.S. government and other bodies, and actively applied such information in its monitoring efforts through its Center for Combating Economic Crimes and Corruption.

A specific section in the Prosecutor General's Office handles terrorism-related cases. The primary investigative body in counterterrorism cases is the Information and Security Service, Moldova's intelligence service. In 2006, ISS was given the governmental lead to establish and manage a special counterterrorism center. In 2009, staffing and funding were minimal, as were its activities. The U.S. Embassy's law enforcement assistance programs aid Moldovan efforts to impede the ability of terrorists and other citizens without proper documents to cross national borders. The programs also facilitated automation at ports of entry to ensure greater security of passports and travel documents.

The separatist-controlled Transnistria region of Moldova remained a potential area of concern. Moldovan law enforcement worked hard to track the whereabouts and activities of individuals moving in and out of Transnistria, an area where central government police and security services were not able to operate. Some of the individuals moving in and out of Transnistria were foreign students who remained in Moldova illegally, as the government lacked the resources to deport them when their visas expired. Corruption was endemic, and it was easy to obtain false travel documents in both Transnistria and Moldova.

- Country Reports on Terrorism 2009- United States Department of State Publication, Office of the Coordinator for Counterterrorism, Released August 2010

Romania

The Romanian Intelligence Service (SRI) assessed that the terrorism threat in Romania was low, both in Romania and to Romanians and Romanian interests abroad. Romania also began implementation of the "National Anti-Terrorism Strategy," which proved an effective mechanism for preventing the use of Romanian financial institutions, including the national banking system, for the purpose of financing terrorist-related activities.

The Romanian Supreme Council for National Defense (CSAT) viewed terrorism as a high priority and ensured political and material support for the National System for Preventing and Countering Terrorism (NSPCT), in particular by assigning the SRI as the national authority for counterterrorism and the technical coordinator of the NSPCT.

Romania continued to provide a wide array of public, military, and diplomatic support to global counterterrorism efforts. On July 1, Romanian President Traian Basescu declared that Romania's mission in Iraq was completed; from January through June, Romania was the third largest troop contributor in Iraq, by invitation of the Government of Iraq. Approximately five Romanian soldiers remained in Iraq after July 1, as part of the NATO training mission. As of December, approximately 1,050 Romanian troops were serving as part of coalition and NATO Alliance efforts in Afghanistan, primarily in the Zabul and Kandahar regions. Romania also continued to make airspace, ground infrastructure, and naval facilities available to U.S. and NATO forces.

- Country Reports on Terrorism 2009- United States Department of State Publication, Office of the Coordinator for Counterterrorism, Released August 2010

The TTX MOVE 1 was arbitrarily considered D Day (set about 15 June 200X) when hospitals and clinics in Chisinau, Bucharest, and Tiraspol were receiving dozens of patients with symptoms resembling influenza, including sudden fever, chills, headaches, dry cough, chest pains, and, in some cases, extreme respiratory difficulty. Most were treated as having a bad case of flu and sent home, but the worst were admitted in the hospitals. Several soccer players from both the Moldovan and Romanian teams were also affected. Military hospitals from Chisinau and Bucharest also see several cases. The cause of the outbreak is not yet known as lab tests and epidemiological investigations are not yet completed.

Additional issues were considered based on the "ground truth":

-Local public health system (Constanta County, Romania) ability to rapidly identify and diagnose new, emerging, or compounded/complex disease symptoms (i.e. inhalational anthrax and also cases of heroin users with severe soft tissue infection due to anthrax).

-International and inter-agency civilian and military channels for sharing of information/intelligence about potential terrorist threats against US forces in Romania.

- Role of printed media and online sources of information in preparing, deterring, and responding to biological incidents, but also their role in creating and/or amplifying public anxiety, confusion, misperceptions, and misconceptions.

MOVE 1: Select Discussion Topics

- Are your national disease surveillance systems giving you timely information about the outbreak?
- Are your relevant IHR Core Capacities in place?
- How timely is the information shared within your government and with whom is the public health system sharing that info?
- Is information reported differently from military versus civilian channels?
- What international notifications are considered?
- Are epidemiological investigations warranted at this point? If yes, describe what is to be done.
- What type of information would lead you to suspect that the outbreak may be due to malicious intent?
- Do health/medical authorities notify law enforcement? If not, when?
- Are you considering activating your National Response Plans at this point?

- How do intelligence, Ministry of Defense, or law enforcement agencies respond to the letter to Pravda by the *Friends of the Dniester*?
- What are the intelligence agencies and law enforcement priorities at this time?
- How would you evaluate this threat?
- With whom will the FBI share the intelligence about the potential attack against US forces in Romania?

- Are there personnel reliability programs and biosecurity regulations in place I your country to prevent the theft or diversion of biological samples from the laboratories?
- Do these regulations differ in civilian versus military institutions?

- Is there a role for the private sector, NGOs, and/or industry and communities at this point (or at any point in the crisis/consequence management)?

- What is your (inter-governmental) organization role and potential actions?
- What actions would international organizations do as the result of the *Friends of the Dniester*'s threats?

The TTX MOVE 2 occurred at about D+5 days (about 20 June 200X) when hundreds of tularemia cases start being reported to WHO from Romania and Moldova as potential Public Health Emergencies of International Concern (PHEIC) in accordance with the International Health Regulations; both countries request international assistance. Dozens of fatalities have also been reported. However, those in medical care respond well to antibiotics and it is expected that the number of new cases will subside.

Additional issues were considered based on the "ground truth":

- Impact of the "worried-well" people on the local public health system.

-Individual responsibility in the community 'web of vigilance'/ reporting to authorities and relationships among law enforcement/ intelligence agencies with anti- and counter-terrorism responsibilities both at the national and international level.

- Joint public health-law enforcement interviews for identifying the source of the outbreak.

-Sharing microbial forensics information (is that evidence?) obtained by genetic sequencing and other genome analysis studies.

MOVE 2: Select Discussion Topics

- What are your plans for augmentation of medical resources?
- What type of protection measures are you offering to the first responders (i.e. public health, police, etc)
- Do you have qualified, certified personnel and procedures in place to collect, preserve, transport, and test microbial samples related to potential criminal or terrorist activities?
- What capabilities do they have to respond to a potential scene contaminated with harmful substances?
- What kind of information and advice are you giving to Points of Entries, i.e. international airports and ground crossings?
- Who is going to test the environmental samples from the stadium? [Are there labs in your country that can handle evidence potentially contaminated with biological materials?]
- What long term health or environmental monitoring plans are you considering?

- Do you have national outreach programs in place to promote vigilance & voluntary reporting of potential criminal/ terrorist acts?

- What international treaties or agreements and/or national laws and regulations will apply in this situation?
- What international organizations will you consider asking for assistance (public health & law enforcement /intelligence) ?
- Is it plausible that either Romania or Moldova would request at this time consultation with the BWC Member States under Article V of the Convention and also activation of the UN Secretary General's Mechanism for Investigation of Alleged Use of CBTW? What will either of those two processes involve?

- What are law enforcements next steps?
- How/with whom is the Moldovan Police and ISS going to share the information about the clandestine lab from Tiraspol?
- Who is in charge on investigating that clandestine lab?
- How (and with whom) is the Romanian Police going to share the information about the planned anthrax attack?
- How will microbial forensics be best integrated with other forms of relevant information (evidence) and intelligence?

TTX Lessons Learned

National Response Plans:

- Activation of respective National Response Plans based on the scenario events was agreed upon but not the timing of the activation (RO & MO)
- International Health Regulations (IHR) notifications were well understood and considered during the TTX (RO & MO)
- National Disease Surveillance Systems in place are likely to provide early alerts of unusual public health emergency events (RO & MO)
- Moldova's electronic disease surveillance system integrates human and veterinary disease information and can be used to create custom-alerts during consequence management operations in a public heath emergency
- Public health notifications to the Ministry of Internal Affairs or Police of suspicions of a deliberate incident may occur sporadically based on informal relationships at different ministerial level but there are no SOPs, policy, guidelines, or annexes to the National Response Plans to explain how that will be done (RO & MO).
- Sharing forensics data (in the TTX scenario, sharing the genomic sequence of the genetically engineered tularemia bacteria) is a debatable issue when such data are connected to an ongoing criminal investigation (US)
- Gaps in sharing information between public health and law enforcement have been identified primarily due to lack of joint training (including joint investigations and interviewing techniques) (RO & MO)
- The current situation in Transnistria will not allow the implementation of the Moldova National Response Plan to Public Health Emergencies as currently drafted since neither public health and/or law enforcement investigations could be carried out in the region; any public health assistance in the region will be coordinated via the WHO and the International Red Cross Organization.
    - The collaboration between Moldova's ISS (Intelligence and Security Service) and Russia's FSB (Federal Security Service) could lead to exchange of information on biosecurity threats
    - ISS will contact The Commonwealth of Independent States (CIS) Anti-Terrorism Center to coordinate border control and investigations

Risk/Intelligence Communication:

- There is a need for more coordinated dissemination of information and awareness raising among national authorities with regard to the international mechanisms and tools for biological weapons nonproliferation, counter-bioterrorism, and international investigations processes (i.e. BWC, UN Security Council Resolution 1540, UN Secretary-General's Mechanism for Investigation of Alleged Use of Chemical, Biological or Toxin Weapons)
    - Policy makers and legislative bodies should also be educated on the domestic consequences associated with a weak and porous nonproliferation framework (RO & MO)
- Physical security of biological agents in medical, research, and public health facilities is undertaken in civilian and military settings (with no policy or regulatory differences); however, there is no formal educational or professional development training /awareness raising with regard to dual use research of concern, biological weapons nonproliferation, bioterrorism risk, responsible conduct of science, or national measures for implementing the Biological Weapons Convention (RO & MO)
    - Such training is particularly needed in academia
- The partnership between the scientific community and law enforcement is not common but possible and highly desirable at the national and international level; it is envisioned in the National Response Plans for mitigating the consequences of a deliberate biological incident but it is not a formalized process when it comes to assessing biological threats (RO & MO)
- Public health information management and outreach to the mass media and public with regard to their role in consequence management need to be re-evaluated to consider a coordinated strategic and tactical approach (RO & MO)
    - There were a variety of opinions with regard to relationship to mass media, from a defensive/closed stance to a more proactive/open stance seeking to maintain the initiative in providing information and establishing friendly relations with the mass media.
    - Maintaining credibility and legitimacy with the media and the public is an essential task of successful governance in a public health emergency
    - Communication with the media seems to be highly centralized in Moldova while in Romania individual governmental agencies may consider issuing their own press releases.

- Both the Romanian Intelligence Service (SRI) and the Ministry of Administration and Interior/ Inspectorate for Emergency Situations provide bioterrorism preparedness and response- related information to the public on their respective websites
- Neither Romania or the Republic of Moldova have a coordinated approach on monitoring how the media responds to their outgoing messages in order to correct potential problems or misperceptions which, in a real-world emergency, may lead to a gap between words and deeds or a growing government credibility ("image fallout") problem
- The role of mass media in Romania may be more critical than in Moldova (where there is less coverage or public debate on national security issues); of note, a 2004 survey of the Romanian population ranked mass media third among the country's most trusted institutions

Assets/Capabilities:

- Romania does not have a clearly identifiable policy on integration of its public health laboratories (local, county, and governmental), whether civilian or military, to assist in detecting a covert bioterrorism event through identification of the biological agent(s) employed. Such a network of laboratories, if established, could share information and resources and will enhance competency and consistency for testing of BT/BW agents. It could provide improved confirmatory and definitive agent identification; enhance availability of referral testing facilities (national and/or regional); ensure consensus on protocol, procedure, and results reporting; provide consultation; and define information flow. It was unclear how a local public health lab would decide where to send a sample for additional advanced testing ("rule-out" or refer) or when/if they will call to inform another agency of their suspicions of a deliberate bio incident (or if they were unable to rule-out a bioterrorism/BW agent)
- Such a policy (on identifying clinical sample testing procedures and laboratories involved)_ is also required to be set in place for U.S. military assigned to, or training at the Joint Task Force East HQ (for *inter alia*, diagnostic identification testing, referral for additional testing, protocols for proper notification, sample handling, and shipping chain-of-custody procedures, etc)

- The Joint Task Force East HQ (Mihail Kogalniceanu Airbase) requires strengthening its CBRN protection capability to protect personnel, maintain critical mission capability, and quickly resume essential functions; joint (US-Romanian) CBRN consequence management training and decision support tools should be developed
- Unlike a chemical or nuclear release, the covert release of a biological agent will not have an immediate impact because of the delay between exposure and illness onset; consequently, the first indication of a biologic attack may only be identified when sick patients present to physicians or other healthcare providers for clinical care.
    - Public health personnel need additional training on the clinical presentation, laboratory diagnosis, medical management, and preventive measures for the more likely bioterrorist agents (including inhalational anthrax) (RO & MO)
    - Mobile Emergency Service for Resuscitation and Extrication (SMURD) is Romania's emergency medical service with terrestrial (ambulances), naval and airborne units; while SMURD personnel may be called to respond to a public health emergency, they lack formal professional training in recognition of illness associated with a deliberate release of biological agents

Anti-terrorism Legislation:

- The legislative frameworks for prevention and response to biological weapons, bioterrorism, or biocrimes in Romania and Moldova, could be improved
    - For Romania, the general consensus was that public health decision-makers may be able to identify potential threats and act quickly to prevent these threats from escalating; however, the Ministry of Health seems to be, from a legislative standpoint, in support of (or subordinate to) SRI (Romanian Intelligence Service)- as the National Authority for Counterterrorism and Technical Coordinator for Preventing and Countering Terrorism- when mitigating the consequences of a deliberate biological incident
    - In the Republic of Moldova, the relevant law for prosecuting acts of terrorism lacks specificity with regard to the deliberate use of biological agents

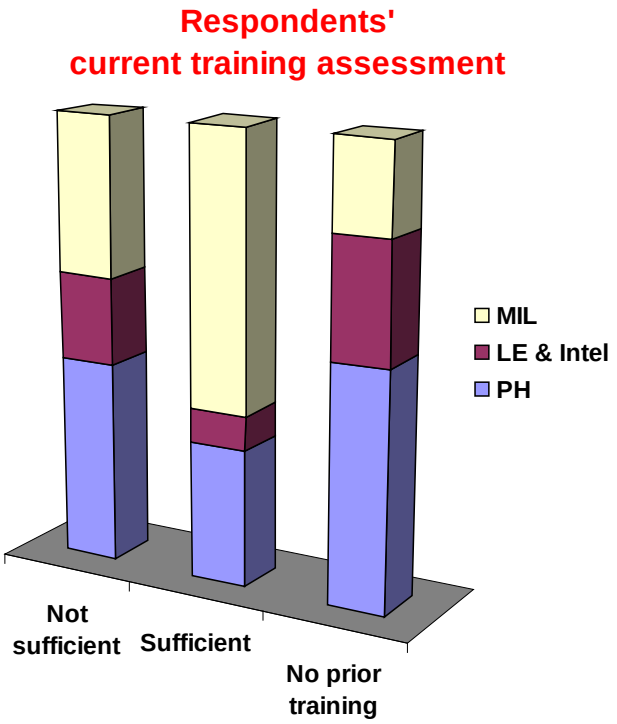
International Coordination

- Countries may prefer to first seek assistance from neighboring countries before contacting any inter-governmental organization
- Interpol is a resource for assistance to national law enforcement (database check, threat information sharing/notices, internet monitoring, etc)
- Mechanisms of requesting assistance under the BWC or the United Nations Counterterrorism initiatives are not well known and should be exercised more.
- There is no formal MOU or detailed agreement on sharing information between WHO and Interpol so neither will have a common operational picture
- There seem to be gaps in integration of law enforcement and public health data at the international level
    - Information available to national intelligence services (e.g. ISS in the context of the exercise scenario) may not reach Interpol.

PARTICIPANTS' FEEDBACK

The following feedback was provided by participants on survey forms (template is shown in Annex C). Data below provide some empirical information on the workshop audience and their perceptions of issues addressed during the trilateral forum and the benefits of such engagement.

64 participants (26 public health, 11 law enforcement and intelligence, 22 military, and 5-other categories) returned their workshop survey forms. About 23% of them had no prior training on bioterrorism preparedness and response and 47.7 % responded that the training they had up to date was not sufficient.



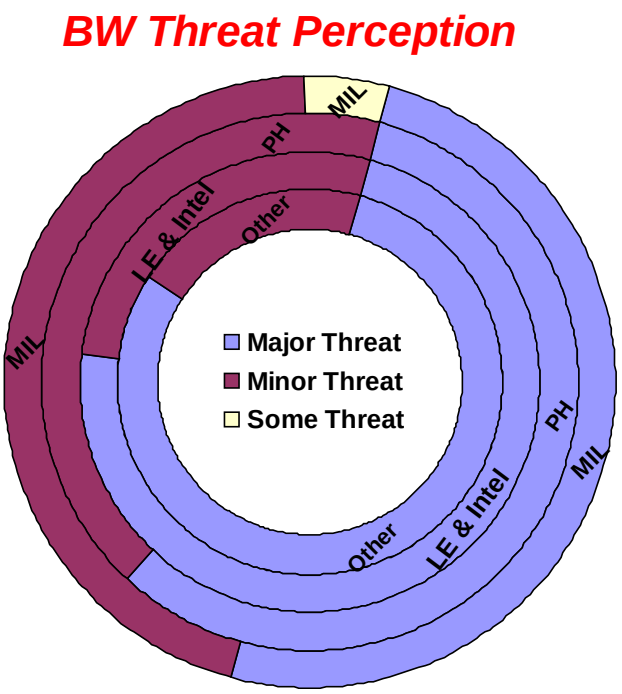
100 % agreed that:

- *"There is benefit in fostering and improving the dialogue and common training between civilian and military first responders"* ;
- *"There is benefit in fostering and improving the dialogue and common training between the national laboratory networks in the region";*
- *"There is benefit in fostering a relationship, improving communication and building trust between the security and scientific communities"*
    - About 95% of respondents answered yes to the questions whether individuals engaged in the life sciences and related fields (e.g.

microbiology, biochemistry) should adopt a professional code that highlights the dual use of scientific knowledge, condemns biological warfare, and specifically encourages or requires ethical conduct to prevent the deliberate malevolent use of biological agents.

- Of note, one military justified his/her negative answer implying that a code of conduct is not necessary since there are international and societal norms and regulations addressing these issues. It is important though to consider such a code of conduct (or the equivalent of a "Hippocratic Oath" for scientists in the framework of international and societal norms and regulations (which in turn should be made known via education and awareness raising programs).

However, the biological threat perception differed among each community. Biological weapons were considered a lower threat by the military (MIL, only 50 % consider BW a major threat), compared to the assessment of the public health community (PH, 57.7 %) or that of the law enforcement and intelligence (LE & Intel, 72.7 %). Four of the 5 participants included in the Other category (IGOs, NGOs) responded that they consider BW a major threat (80 %).



The majority of participants agreed on the usefulness and quality of training provided.

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
1. The workshop was well organized.	34 %	56 %	2 %	0 %	8 %
2. The exercises was well facilitated	39 %	56 %	2 %	0 %	3 %
3. The reference materials were very useful	53 %	45 %	2 %	0 %	
4. The exercise met the stated objectives.	45 %	52 %	0 %	0 %	3 %
5. The workshop and exercise were relevant to my job and my role in an emergency.	28 %	63 %	0 %	0 %	9 %
6. The exercise helped me to integrate and practice the skills and knowledge I learned in prior trainings.	55 %	33 %	0 %	0 %	12 %
7. Participating in the workshop & exercise increased my understanding of preparedness and response to bioterrorism	48 %	41 %	2 %	0 %	9 %
8. I would like to participate in more training events of this kind	58 %	36 %	2 %	0 %	4 %

77% of respondents considered that the length of the workshop was "*about right*" with the other 23% considering that it was too short.

In terms of training usefulness to the individual and the organizations they represent, 41 % answered *"excellent"*, 45 % answered *"very good"*, 11% answered *"good"*, and 3 % answered *"fair"*.

Additional comments from participants (on survey forms):

Include an operational/field exercise
Provide more tactical/operational training on criminal investigations and prosecution of terrorist cases as well as epidemiological field investigations.
Provide additional scenarios/exercises for follow up and exercise the alert/notification/information flow
Translate all materials in Romanian/Moldovan
Present real-world cases, best practices, and lessons learned (national presentations)
Provide more literature on epidemiological investigations
Include information on agro-bioterrorism
Balance better the structure of break out groups and add more law enforcement/intelligence/security participants
Add participants from the Prosecutor General's Office

Add more facilitators per break out group

Add one more day of training (or more time for TTX) and focus on field demonstration of capabilities

Scenario to be provided (in English and Romanian/Moldovan) much sooner than at the workshop's start to give participants time to prepare.

Training could be improved by including additional civil and military experts from other areas such as communications, intelligence, etc

Include additional countries that could provide assistance if needed.

Focus on the standard operational procedures specific to each participating organization in response to the scenario

"The exercise was excellent. It is important to establish the details of inter-sectoral coordination and to consolidate the regional response capabilities of Moldova and Romania through the Ministry of Health and Ministry of Foreign Affairs".

"Workshop and exercise were well organized. It is important to build on them and continue training on related topics".

"Political decision-makers should be involved in this type of training to make them aware of the value of preventing public health emergencies instead of focusing primarily on response."

CONCLUSION AND FOLLOW-UP ACTIONS FOR MOLDOVA-ROMANIA BILATERAL DISCUSSIONS

The Trilateral (US-Romania-Moldova) Civilian-Military Forum on *Outbreak Response and Bioterrorism Investigation*, organized in Chisinau, Republic of Moldova, on 19-21 October. The trilateral forum was organized by the US Department of Health and Human Services (Office of the Assistant Secretary for Preparedness and Response) and the US Department of Defense (US European Command, Armed Forces Health Surveillance Center, Center for Disaster and Humanitarian Assistance Medicine, and the US Public Health Command – Europe). It included awareness training and a tabletop exercise designed to evaluate policies and plans for prevention, deterrence, and response to bioterrorism incidents borne out of the convergence of criminal and terrorist networks.

The goals of the trilateral forum were to: i) promote interagency (in particular public health-law enforcement but also civilian-military) cooperation, coordination and synchronization for preparing, detecting, and responding to infectious disease outbreaks, whether natural, accidental, or deliberate in nature; ii) establish sustainable laboratory partnerships to enhance training and medical surveillance initiatives among the three countries; and iii) strengthen the core capacities required by the WHO International Health Regulations and existing national measures consistent with obligations under the Biological Weapons Convention and the UN Security Council Resolution 1540 to deter, prevent, or respond to biological incidents or threats.

The forum was attended by about 100 participants including civilian and military public health (laboratory and preventive medicine personnel, epidemiologists, emergency response planners, administrators), law enforcement, intelligence, military, and affiliated professionals (other first responders, public communication officers, foreign affairs officers, representatives of NGOs) from US, Romania, and the Republic of Moldova; and representatives of inter-governmental organizations (WHO, ECDC, Interpol, NATO, UN Office of Disarmament Affairs, and the Biological Weapons Convention Implementation Support Unit). Opening remarks were offered by the US Ambassador to the Republic of Moldova, His Excellency Asif Chaudhry.

This After-Action Report will be posted online on the HHS/ASPR website at: http://publichealthemergency.hhs.gov/Preparedness/international/Pages/orbitforum.aspx upon clearance for public release by workshop participants.

The following issues/areas of consideration for further collaboration have been discussed during this training event:

- Joint Romania-Republic of Moldova request for assistance to HHS/CDC for implementation of a Field Epidemiological (and Laboratory) Training Program [FE(L)TP] to improve and strengthen their public health system and infrastructure [http://www.cdc.gov/globalhealth/fetp/]

- Request Influenza specimen collection kits from the US Army Landstuhl Regional Medical Center (quantities of 50, 100, or 200) and submit specimens for full respiratory virus screening or influenza typing [Point of contact: CPT Damon Ellison, email: damon.ellison@amedd.army.mil, tel. 011-49-6371-867832, fax: 011-49-6371-866390]

- Registering relevant laboratories from Moldova and Romania on WHO's Global Laboratory Directory (GLaD) to take advantage of additional training opportunities [http://www.gladmap.org]

- Contact VERTIC (Verification Research, Training, and Information Centre) for a free review of the legislative framework in Romania and Moldova to strengthen successful prosecution of terrorists and effective implementation of the Biological Weapons Convention and UN Security Council Resolution 1540 [http://www.vertic.org).

- Education on biosafety/biosecurity and biological weapons nonproliferation
    - An online course is available online on the University of Bradford website at: http://www.dual-usebioethics.net/
    - The above course will be available in Romanian/Moldovan languages early 2011
    - Additional information on biosecurity and free online courses is available on the White House Office of Science and Technology Policy website at: http://www.whitehouse.gov/administration/eop/ostp/nstc/biosecurity

- The Carol I National Defense University from Bucharest, Romania, will offer a course in bioterrorism preparedness and response during 2011 academic year [http://www.unap.ro/ro/index.html]

- Contact COL Hans-Ulrich Holtherm (email: HansUlrichHoltherm@bundeswehr.org) for follow up information and collaboration on NATO's Deployment Health Surveillance Capability (DHSC)

- Submit nominations of laboratories and experts from Romania and Moldova through the respective Permanent Missions to: UN Office of Disarmament Affairs, Attn: Ms. Gabriele Kraatz-Wadsack, Chief, WMD Branch, 405 East 42nd Street, New York, NY 10017, USA. Training will be provided by UNODA in a multi-national team environment under the UN auspices for investigation of chemical and/or biological incidents. See: http://www.un.org/disarmament/WMD/e-Portfolio/CBW-use.pdf and http://www.un.org/disarmament/WMD/Secretary-General_Mechanism/

- Contact Frontline Foundation for training of BSL-4 laboratory personnel in Romania [Point of Contact: Dr. Gretchen Demmin, BSL4 Faculty Director, Frontline Foundation, Three Dunwoody Park, Suite 103, Atlanta, GA 30338, USA, tel.: +1-303-696-5718, e-mail: gdemmin@frontlinefoundation.org]

- Potential visit at BSL4 laboratory in Romania of WHO, ECDC, and US (HHS and DOD) representatives.

- Pursue request for follow up training activities to also cover operational issues and specialized assets required for response to biological incidents (contingent on funding sources).

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APPENDIX A – ORBIT FORUM AGENDA

Trilateral (US-Romania-Moldova) Civilian-Military Forum
on
Outbreak Response and Bioterrorism Investigation
Chisinău, Moldova, 19-21 October 2010

Agenda

TUESDAY, 19 OCTOBER 2010

9:00 am **Welcome and Opening Remarks**
(speakers' introduction by **Dr. Dana Perkins**, U.S. Department of Health and Human Services)

- **Ambassador Asif Chaudhry,**

- **Dr. Mihai Magdei**, Deputy Minister, Ministry of Health, Republic of Moldova

- **BG Mihai Marius Muresan**, Surgeon General, Romania

- **Dr. Laurentiu Mihai**, Senior Counselor, Ministry of Health, Romania

-**Dr. Thomas Hofmann**, Area Coordinator IHR, World Health Organization (WHO) Regional Office for Europe

- **COL Robert Lipnick**, ***Chief, Communications, Standards & Training Division,*** U.S. Armed Forces Health Surveillance Center (AFHSC)

- **LtCol Matt Wyatt**, Chief Force Health Protection, U.S. European Command (EUCOM), Command Surgeon's Office

This session will focus on the role of international organizations in, *inter alia*, information sharing on public health events of international concern, early detection and notification, BW nonproliferation, coordination of regional and international assistance for consequence management.

(speakers' introduction by **Mr. Carl Prober,** U.S. Department of State)

- *Implementation of the International Health Regulations (IHR) in the WHO European Region* (30 min)- **Dr. Thomas Hofmann,** Area Coordinator IHR, WHO Regional Office for Europe

- *European Centre for Disease Prevention and Control (ECDC)- and Public Health Security in the European Union (30 min)*- **Dr. Massimo Ciotti**, Deputy Head, Preparedness and Response Unit, ECDC

- *Development of a Deployment Health Surveillance Capability for NATO* (30 min)- **COL Hans Holtherm**, Head of Deployment Health Surveillance, Bundeswehr Medical Office

- *Biological Weapons Convention (BWC)* (30 min*)* – **Ms. Ngoc Phuong Huynh**, Political Affairs Officer, BWC Implementation Support Unit

Break and Group Photo: 11:30 am: 12:00 pm

- *Bioterrorism Prevention Programme & INTERPOL's tools and resources in case of a bioincident* (30 min)- **Mr. Joris De Baerdemaeker**, Bioterrorism Prevention Programme Manager

- *NATO's Non-Proliferation Efforts* (30 min)- **Mr. Axel Angely**, Deputy Director, NATO WMD Nonproliferation Center

- *Assistance with UN Security Council Resolution 1540 implementation* (30 min)- **Mr. Scott Spence**, Senior Legal Officer, VERTIC

13:30 **LUNCH**

This session will address the national response frameworks, including, *inter alia*: lab capabilities, national plans and responsible authorities for bio incident consequence management, exercises/training in support of national plans, whole-of-government and regional collaboration approaches and/or plans for national/international information sharing and notification, epidemiological/law enforcement investigations, consequence management and coordination of assistance.
(speakers' introduction by: **LtCol Matt Wyatt**, EUCOM)

Moldova (30 min):

- *Biological Incident Consequence Management* (15 min)- **Dr. Stela Gheorghița**, Deputy Director, National Center for Public Health, Ministry of Health, Republic of Moldova

- *Military Support to Civilian Authorities in Moldova* (15 min)- **MAJ Iurie Caterinciuc**, Preventive Medicine Center, Ministry of Defense, Republic of Moldova

Romania (30 min):

- *Civilian & Military Surveillance and Response on Communicable Diseases in Romania* (15 min)- **Dr. Radu Cucuiu**, IHR Technical Expert, National Institute for Public Health, Ministry of Health, Romania

- *Military Support to Civilian Authorities in CBRN Consequence Management (*15 min*)*- **COL Cristian Răduț, MD, Deputy Director, Medical Research Center, Ministry of Defense, Romania**

USA (30 min):

- *Whole-of-Government Approach to Consequence Management of Biological Incidents & Hazards* (15 min) – **Dr. Dana Perkins**, Senior Science Advisor, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Service

- *Civilian & Military Integration in Surveillance and Response on Communicable Diseases in the US* (15 min)- **Dr. Dana Perkins**, Senior Science Advisor, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Service

Break: 16:30- 16:45

International Assistance:

- *US Army Corps of Engineers (USACE) Civil Military Emergency Preparedness (CMEP) Program* (30 min)- **Ms. Marypat Moller**, Project Lead, CMEP, USACE

- **Overview of The Center** *for* **Disaster** *and Humanitarian Assistance Medicine (CDHAM) and the* **Armed Forces Health** *Surveillance Center (AFHSC) - Utilizing host nation resources and requesting international assistance* (30 min)- **COL Robert Lipnick**, ***Chief, Communications, Standards & Training Division***, AFHSC

Adjournment: 17:45

19:00 **Meet & Greet Reception sponsored in part by Emergent BioSolutions Inc.**

WEDNESDAY, 20 OCTOBER 2010

9:00 am	**Biological Incident - Case Study / TTX**

Workshop participants will be provided with ***The Outbreak Response and Bioterrorism Investigation Trilateral (ORBIT) Forum Tabletop Exercise (TTX)*** Exercise Situation Manual (EXSIM) when they register at Leogrand Hotel in Chisinau, Republic of Moldova. The EXSIM is the participant handbook and will serve as a guide and reference manual throughout the exercise.

ORBIT Forum TTX will be organized as facilitated informal discussions about general policies, procedures, and courses of action driven by a fictional bioterrorism scenario.

TTX Coordinators:

US: Dana Perkins (HHS/ASPR)
MO: Stela Gheorghita (MoH)

TTX Facilitators:

Thomas Hofmann (WHO)
Ed Maes (HHS/CDC)
Robert Lipnick (AFHSC)
Carl Prober (DOS/ISN)
Joris De Baerdemaeker (Interpol)
Lucian Lerescu (SPP)
Claudiu Sbarcea (SPP)
Matt Wyatt (EUCOM)
Hans Holtherm (NATO)

Break: 11:15-11:30

13:00	**LUNCH**
14:30	**TTX Wrap-up**

Wrap-up and plenary discussions (lessons learned, comments/recommendations from participants and observers).

Adjournment: 16:00

16:00	**Site Visit: National Center for Public Health, Chisinau, Republic of Moldova**

THURSDAY, 21 OCTOBER 2010

9:00 am	**Epidemiological Surveillance and Investigation**

This session will focus on the capacities and competencies needed to rapidly conduct epidemiological investigations. It includes deliberate and naturally occurring exposure and disease detection, rapid implementation of active surveillance, maintenance of ongoing surveillance activities, epidemiological investigation, analysis, and information sharing. Emphasis will be placed on competencies and capacity as required by WHO International Health Regulations, UN Secretary General's Investigative Mechanism of Alleged Use of Biological and Chemical Weapons, and on public health and law enforcement cooperation to identify the biological agent, prevent the spread of the disease, prevent public panic, and apprehend those responsible.

- *The UN Secretary General's Mechanism on Investigation of Alleged Use of Biological and Chemical Weapons* (30 min) – **Mr. Franz Kolar,** Political Affairs Officer, UN Office of Disarmament Affairs (UNODA)

- *Global Outbreak Alert and Response Network (GOARN and the Global Laboratory Directory (GLaD)* (30 min) – **Dr. Thomas Hofmann**, Area Coordinator IHR, WHO Regional Office for Europe

- *Global Disease Detection Program and the Field Epidemiology (and Laboratory) Training Program* (15 min)- **Dr. Ed Maes**, Chief, U.S. Centers for Disease Control and Prevention (CDC) - Georgia Country Office, U.S. Department of Health and Human Service

- *U.S. Armed Forces Health Surveillance Center* (15 min) – **COL Robert Lipnick**, ***Chief, Communications, Standards & Training Division,*** AFHSC

- *U.S. Army Public Health Command (USA PHC)* – (15 min) – **CDR Michael Cooper,** Epidemiologist, USA PHC Region-Europe

- *EUCOM Influenza-Like Illness (ILI) Surveillance Program (15 min)*- **MAJ Thomas Palys**, Chief, Infectious Disease Laboratory, Army Landstuhl Regional Medical Center, Germany

Break: 11.00-11:30

- *Romania*- *Field Epidemiology & Mobile Bio Detection Teams* (15 min)- **COL Cristian Radut, MD,** Deputy Director, Medical Research Center, Ministry of Defense, Romania

- *Moldova*- *Field Epidemiology & Mobile Bio Detection Teams* (15 min)- **Professor Dr. Valeriu Chicu**, Prorector, State Medical and Pharmaceutical University "Nicolae Testemitanu", Chisinau, Republic of Moldova

LUNCH

12:00

13:30 **Cooperative Laboratory Networks**

Laboratories play a critical role in the timely recognition of biological threats. However, laboratory capabilities and capacities vary widely around the world. The national public health preparedness and response are strengthened by participation in laboratory networks at the local, regional, and global level. This session will focus on successful models of cooperative lab networks and means to establish and sustain partnerships among national laboratories.

- *US National Biosafety and Biocontainment Training Program (*30 min*)*- **Dr. Gretchen Demmin**, BSL4 Faculty Director, Frontline Healthcare Workers Safety Foundation Ltd, Atlanta, USA

- *EUCOM Military Treatment Facilities / International partnerships (30 min)*- **MAJ Thomas Palys,** Chief, Infectious Disease Laboratory, Army Landstuhl Regional Medical Center

- *Practical demonstration: Biological Sample Collection, Packaging, and Shipping preparation (30 min)*- **MAJ Thomas Palys**, Chief, Infectious Disease Laboratory, Army Landstuhl Regional Medical Center

15:00 **Workshop conclusion and certificates award**

APPENDIX B – LIST OF PARTICIPANTING ORGANIZATIONS

Inter-Governmental Organizations

World Health Organization - Europe
United Nations Office of Disarmament Affairs (UNODA), WMD Branch
Biological Weapons Convention (BWC) Implementation Support Unit (ISU)
European Center for Disease Control and Prevention (ECDC)
North Atlantic Treaty Organization (NATO) - WMD Nonproliferation Center
NATO Committee of the Chiefs of Military Medical Services
NATO Center of Excellence for Defense Against Terrorism (CoE DAT)
International Criminal Police Organization (Interpol)

USA

U.S. Embassy, Republic of Moldova
U.S. Department of State, Bureau of Arms Control, Verification and Compliance, Office of Chemical and Biological Weapons Affairs
U.S. Department of State, Bureau of International Security and Nonproliferation, Office of WMD Terrorism, Foreign Consequence Management Program
U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response (ASPR)
U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC)
U.S. Department of Defense, Center for Disaster and Humanitarian Assistance Medicine (CDHAM)
U.S. Department of Defense, U.S. Army Corps of Engineers (USACE)
U.S. Department of Defense, Armed Forces Health Surveillance Center (AFHSC)
U.S. Department of Defense, Public Health Command Region – Europe (PHC- Europe)
U.S. Department of Defense, Landstuhl Regional Medical Center
U.S. Department of Defense, United States European Command (EUCOM)

Romania
Ministry of Health, Office of the Minister Ministry of Health, Regional Center of Public Health-Iaşi Ministry of Health, Regional Center of Public Health - Timisoara Ministry of Health, National Institute for Public Health Ministry of Health, Department of Public Health and Control in Public Health Ministry of Health, National Institute for Research and Development in Microbiology and Immunology "Ion Cantacuzino" Ministry of Defense, General Staff Ministry of Defense, Office of Surgeon General Ministry of Defense, Air Forces Command Ministry of Defense, Navy Forces Command Ministry of Defense, Army Forces Command Ministry of Defense, Preventive Medicine Center Ministry of Defense, CBRN Research Center Ministry of Defense, Constanta Military Hospital Ministry of Defense, Craiova Military Hospital Ministry of Defense, Protection and Guard Service (SPP) Ministry of Defense, Defense Policy Department Ministry of Defense, Medical Research Center Ministry of Administration and Interior, Mobile Emergency Service for Resuscitation and Extrication (SMURD)- Mures, Iasi, Dolj, Cluj, Timis, Bihor
Moldova
Ministry of Health, Office of the Minister Ministry of Health, Office of Preventive Medicine in Public Health Ministry of Health, Office of Public Health Policy Ministry of Health, National Center for Public Health Ministry of Health, Emergency Services in Public Health Ministry of Health, Regional (Rayonal) Center for Public Health- Ungheni Ministry of Health, Regional (Rayonal) Center for Public Health –Bălți Ministry of Health, Regional (Rayonal) Center for Public Health - Cahul Ministry of Health, Municipal Center for Public Health – Chisinau Ministry of Health, Disaster Medicine Center Ministry of Defense, Central Military Clinical Hospital Ministry of Defense, Preventive Medicine Centre Ministry of Defense, 1st "Moldova" Motorized Infantry Brigade Ministry of Defense, Defense Policy & Planning Directorate Ministry of Defense, Center of Consultation and Diagnosis Ministry of Internal Affairs, Medical Service Ministry of Internal Affairs, Department of Carabineer Troops Ministry of Foreign Affairs and European Integration

Ministry of Internal Affairs, Department of Emergency Situations Intelligence and Security Service (ISS)
Non-Governmental Organizations
Verification, Research, Training and Information Centre (VERTIC), UK Frontline Healthcare Worker's Safety Foundation Ltd., US Emergent BioSolutions Inc., US State Medical and Pharmaceutical University “Nicolae Testemițanu”, Republic of Moldova

APPENDIX C – ORBIT FORUM SURVEY

WORKSHOP PARTICIPANT SURVEY / CHESTIONAR

Thank you for completing the following survey. This evaluation is designed to collect your feedback about the *Outbreak Response and Bioterrorism Investigation Trilateral Forum* and how it contributed to your professional development.

Va multumim pentru completarea acestui chestionar. Aceasta evaluare are scopul de a colecta impressile dumneavoastra despre forumul trilateral pentru dezvoltarea capacităților de reacție în caz de epidemii sau bioterorism.

Confidentiality Statement / Confidentialitate

Your responses are confidential and will be analyzed collectively with the other participants' responses. Aggregate data are used to provide the workshop/exercise organizers with feedback regarding the quality of this training event and the benefits to the participants.

Rapunsurile dumneavoastra sunt confidentiale si o sa fie analizate laolalta cu raspunsurile celorlati participanti. Datele agregate vor fi folosite de organizatorii evenimentului pentru a evalua daca participantii au beneficiat de aceasta instructie precum si calitatea instructiei.

Directions / Instructiuni

Please mark only one answer for each question unless otherwise indicated. Please add comments if you would like to explain your answer(s). For questions regarding this survey, please contact Dr. Dana Perkins, US Department of Health and Human Services, dana.perkins@hhs.gov

Va rugam sa marcati un singur raspuns pentru fiecare intrebare (daca instructiunile nu sugereaza altceva). Va rugam sa adaugati comentarii daca vreti sa explicati raspunsurile dumneavoastra. Daca aveti intrebari cu privire la acest chestionar, va rog sa o contactati pe Dr. Dana Perkins, US Department of Health and Human Services, dana.perkins@hhs.gov

1. What type of organization or agency do you work for? [Pentru ce tip de organizatie lucrati?]

__ Government health institution (PH) / Organizatie de sanatate publica guvernamentala
__ National law enforcement (LE) / Ministerul de Interne, Politie, etc
__ Military (Mil) / Militar
_ _Private (non-governmental) industry or business (NGO) /Industries au alta organizatie comerciala non-guvernamentala
__ Community-based or nonprofit organization / Organizatie comunitara sau fara profit
__ Educational Institution /Institutie de educatie
__ Inter-governmental organization (IGO) / Organizatie inter-guvernamentala
__ Other, please specify / Alta organizatie (va rog specificati): _____

2. Do you think that biological weapons present a ___major, ___minor, or ___no threat to your country? [Credeti ca armele biologice reprezinta un risc major____ minor____ sau nici un risc pentru tara dumneavoastra?]

3. Do you think there is benefit in fostering and improving the dialogue and common training between the civilian and military first responders? [Credeti ca este avantajos sa se stimuleze si imbunatateasca dialogul si pregatirea profesionala in comun intre civilii si militarii care raspund la situatiile de urgenta?]

YES /DA____

NO / NU_____

NO OPINION / NU AM NICI O PARERE ____

4. Do you think there is benefit in fostering and improving the dialogue and common training between <u>the national laboratory networks in a region</u>? [Credeti ca este avantajos sa se stimuleze si imbunatateasca dialogul si pregatirea profesionala in comun intre retelele de laboratoare nationale dintr-o anumita zona geografica?]

YES / DA____

NO / NU_____

NO OPINION / NU AM NICI O PARERE ____

5. Do you think there is benefit in fostering a relationship, improving communication and building trust between <u>the security and scientific communities</u> ? [Credeti ca este avantajos sa se stimuleze si imbunatateasca dialogul si sa se sporeasca increderea intre cei ce se ocupa cu securitatea national si aplicarea legilor si oamenii de stiinta?]

YES /DA____

NO /NU_____

NO OPINION / NU AM NICI O PARERE____

6. Should individuals engaged in the life sciences and related fields (e.g., microbiology, biochemistry) adopt a <u>professional code</u> that highlights the dual-purpose use of scientific knowledge, condemns biological warfare, and specifically encourages or requires ethical conduct to prevent the deliberate malevolent use of highly infectious pathogens? [Credeti ca oamenii de stiinta din cercetarea biologica si domeniile legate de aceasta ar trebui sa adopte un cod etic de comportament profesional...?]

YES / DA___

NO / NU____

NO OPINION / NU AM NICI O PARERE _____

7. How do you evaluate your current training in preventing and/or responding to a bioterrorism incident/ biological threat? [Cum evaluate pregatirea dumneavoastra professional curenta in prevenirea sau raspunsul la un incident de bioterrorism/amenintare biologica?]

I didn't have any training on this subject before / Nu am participat in instructie pe acest subiect inainte_____

Sufficient to help me do a good job at work / Suficient ca sa fac o treaba buna la lucru_____

Not sufficient, I need more training / Nu indeajuns, am nevoie de mai multa pregatire_____

8. The following questions relate to the workshop overall. *Please check the box that best represents your level of agreement with the statement*. [Urmatoarele intrebari se refera la instructie in general]

	Strongly Agree / Sunt de acord cu strasnicie	**Agree / Sunt de acord**	**Disagree/ Nu sunt de acord**	**Strongly Disagree In mod absolut nu sunt de acord**	**N/A**
1. The workshop was well organized/ Partea didactica a evenimentului a fost bine organizata					
2. The exercise was well facilitated / Exercitiul a fost facilitat bine					
3. The reference materials were very useful/ Materialele de referinta au fost foarte utile					
4. The exercise met the stated objectives/ Exercitiul si-a atins obiectivele					
5. The workshop and exercise were relevant to my job and my role in an emergency/ Partea didactica a evenimentului si exercitiul sunt relevante pentru slujba mea si rolul meu in urgente					

6. The exercise helped me to integrate and practice the skills and knowledge I learned in prior trainings / Exercitiul m-a ajutat sa integrez si sa pun in practica priceperea si cunostiintele mele din pregatirea anterioara						
7. Participating in the workshop & exercise increased my understanding of preparedness and response to bioterrorism/biological threat/ Participarea la partea didactica a evenimentului si la exercitiu au condus la o intelegere mai deplina a pregatirii necesare si a capacitatilor de reactie la bioterrorism/amenintari biologice						
8. I would like to participate in more training events of this kind / As vrea sa mai particip in evenimente de instructie de acest fel						
	Strongly Agree / Sunt de acord cu strasnicie	**Agree / Sunt de acord**	**Disagree Nu sunt de acord**	**Strongly Disagree In mod absolut nu sunt de acord**	**N/A**	

9. The length of the workshop (including the exercise) was: [Durata evenimentului a fost…]

Too short / Prea scurt____

About right / Numai bine_____

Too long / Prea lung_____

10. Please rate this training in terms of its <u>overall usefulness</u> to you and your agency / va rugam sa evaluati acest eveniment de instructie cu privire la <u>utilitatea generala</u> a acestuia pentru dumneavoastra si pentru institutia la care lucrati.

Excellent / Excelent____

Very Good / Foarte bun_____

Good / Bun_____

Fair / Rezonabil_____ Poor / Foarte putin_____
11. How could the workshop and/or exercise have been improved? [Cum credeti ca am fi putut imbunatati evenimentul acesta, inclusive exercitiul?]

Supporting Organizations

Stronger Together